Power and Control in Medicine and Nursing – Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?

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DEDICATION

For my girls, Amy Houser and Sarah Selby, powerful young women who value education. We will, bit by bit, change the status-quo and leave this world a better place to be a woman.

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ABSTRACT

Examination of the power dynamics at work in perpetuating health care hierarchy-related interprofessional collaboration barriers is needed to rationally develop strategies for teaching collaborative skills to health care providers. A mixed-methods study employing critical realist grounded theory examined the implicit beliefs, assumptions and power hierarchies related to gendered perceptions of the professions of nursing and medicine by students of those professions. Two focus groups of nursing students (n = 6 and n = 8) and one focus group of medical students (n = 6) and an online survey of both medical and nursing students utilizing the Interpersonal Hierarchy Expectation Scale (Mast, 2005[a]) (N = 73) provided the data. Focus group data revealed that both nursing and medical students had strongly gender-essentialized beliefs about the social categories of medicine and nursing with nursing as feminine and medicine as masculine. Students ascribed expectations of work performance based on gender with female physicians expected to be more successful in family-oriented roles (pediatrics) and male nurses expected to be more successful in 'non-nurturing' roles (surgery). Survey data revealed that both nursing and medical students had the same level of hierarchy expectations. Gendered stereotypes of nurses as communal and physicians as agentic can contribute to the maintenance of components of the health care hierarchy that lead to sub-optimal interprofessional collaborative practice. Understanding students' essentialist beliefs about the social categories of nursing and medicine can inform effective interprofessional education curriculum development.

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LIST OF ABBREVIATIONS

AMA	American Medical Association
ANA	American Nurses Association
ANOVA	Analysis of variance
APRN	Advanced Practice Registered Nurse
ICU	Intensive Care Unit
IHE	Interpersonal Hierarchy Expectation Scale
IOM	Institutes of Medicine
IPEC	Interprofessional Education Collaborative
IRB	Institutional review board
K-S	Kolmogorov-Smirnov
RWJF	Robert Woods Johnson Foundation
SDT	Social Dominance Theory
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

CHAPTER 1:

GENERAL STATEMENT OF THE PROBLEM

The World Health Organization [WHO] (2010) views collaboration between health care workers as essential in improving health care outcomes. During the last 20 years, there has been increasing discussion on identification of competencies for interprofessional collaborative practice and designing programs to teach those competencies. Initiatives have included changing education systems and professional organizations to help health care providers work more collaboratively and effectively (Frenk et al., 2010). In spite of widespread discussion in the professional literature and public discourse, health care providers have been slow to adopt meaningful interprofessional collaboration in their practices (Baker, Egan-Lee, Martimianakis, & Reeves, 2011). Understanding the forces at work in preventing the adoption of effective collaborative practices is necessary if interprofessional collaboration is to be widely accepted in the provision of health care.

Essential components of collaboration in health care include: working with individuals of other health professions in a climate of mutual respect and shared values, shared acknowledgment of each member's roles and abilities, and effective communication that recognizes the influence of culture, power, and hierarchies within the health care system (Interprofessional Education Collaborative Expert Panel [IPEC], 2011). Sullivan (1998) defined collaboration as "…a dynamic, transformative process of creating a power sharing partnership for pervasive application in health care practice, education, research, and organizational settings for the purposeful attention to needs and problems in order to achieve likely successful outcomes" (p. 6)

Meaningful interprofessional learning experiences have been challenging to create because of the difficulty in finding a common language between professions (Smith & Clouder, 2010). There is a comfort level in maintaining disciplinary territoriality, frequently described in terms of institutional silos, that is difficult to overcome. Structural challenges identified by Smith and Clouder (2010) include the hierarchically stratified health care system culture and its resistance to change, conceptual confusion, faculty attitudes, costs of curriculum change, and professional regulation. The socialization process within disciplines promotes professional commitment and solidarity but impedes collaboration across disciplines (Smith & Clouder, 2010).

Chapter 1 reviews health care systems hierarchy, a barrier to interprofessional collaborative practice. Understanding factors that influence behavior among health care professionals is important in understanding potential measures to produce changes resulting in improved patient outcomes. Health care professionals include nurses, physicians, nurse practitioners, physician's assistants, physical and occupational therapists, social workers, pharmacists, and dieticians. For this discussion, only nurses and physicians will be included.

Organization of the Study

This paper is divided into five chapters. Chapter 1, General Statement of the Problem, reviews barriers to interprofessional collaboration within the context of clinical care. An overview of the goals of the study is provided.

Chapter 2, Literature Review, delves deeper into the concept of power hierarchies as they are constructed in the fields of medicine and nursing and discusses the need for thoughtfully designed interprofessional education specifically designed to teach students about the patient outcome effects of maintaining power hierarchies.

Chapter 3 reviews implicit gender bias and how it contributes to maintaining and reinforcing power dynamics barriers affecting interprofessional collaboration. The method of inquiry, population, data gathering, data analysis, and study findings are provided.

Chapter 4 presents and discusses the findings using a critical social theory perspective. Individual and collective viewpoints are examined to determine if those viewpoints are underpinned by the power structures in health care.

Chapter 5 ties together how the findings might be used to improve interprofessional education for pre-professional health care students. Implications of the findings and suggestions for further inquiry are included.

Hierarchy: A Barrier to Effective Interprofessional Collaborative Practice

The WHO (2010) issued a global call-for-action to improve collaborative practice, defragment health care systems, with the goal of improved patient outcomes. In the United States, this call for action was answered by creating and convening the IPEC Expert Panel whose purpose was the development of core competencies for collaborative practice. Central to the development of the core competencies was the idea that breaking down of "professional silos" and building non-hierarchical relationships within health care teams would improve collaboration and ultimately improve patient outcomes (Frenk et al., 2010; IPEC, 2011)

Changing power dynamics involves redistributing decision-making authority (Stone, 2012). There is widespread agreement that medical hierarchies need to be 'flattened' for meaningful interprofessional collaboration to occur, but no consensus among professionals working in interprofessional collaborative practice education on how this should be accomplished. To find examples of promising interprofessional collaborative practices in health care, the Roberts Woods Johnson Foundation [RWJF] (2015) conducted a "Lessons from the

Field" project. The project reported that the following practices were present in promising collaborative practice: Put patients first; demonstrate leadership commitment to interprofessional collaboration as an organizational priority through words and action; create a level playing field that enables team members to work at the top of their license, know their roles, and understand the value they contribute; cultivate effective team communication; explore the use of organizational structure to hardwire interprofessional practice; and train different disciplines together so they learn how to work together (RWJF, 2015). The authors describe issues of power in their creation of the level playing fields examples but do not explicitly address the undergirding of power hierarchies within the social context of each of these practices.

Hierarchies are a common feature of social organization in every society (Friesen, Kay, Eibach, & Galinsky, 2014; Sidanius & Pratto, 1999). Social hierarchies within the health care system consist of vertically stratified groups of professions. Hierarchies "provide rules about who should be doing what and describe a predictable pattern of relations among group members" (Friesen et al., 2014). Groups higher in social hierarchies have more power and decision-making authority than groups ranking lower (Friesen et al., 2014). Power dynamics between the higher-ranking physicians and lower-ranking nurses are reflected in individual's perceptions of power and status within the health care team (Hart, 2015) and is possibly "the main conceptual barrier hindering collaboration" (Supper, et al., 2014). According to Hart (2015), "[n]urses are particularly affected by perceptions of power and disempowerment, which affects their role and participation on an interprofessional team" (p. 354). The nurse-physician relationship is historically patriarchal and is thought to be naturalized and justified by mainstream ideas on gender (Bell, Michalec, & Arenson, 2014). Although women have entered the field of medicine

in increasing numbers, men retain the power within the profession (Bell, et al., 2014; Davies, 1996).

Feminine Nursing and Masculine Medicine

Cultures have long divided tasks and work along gendered lines (Wood & Eagly, 2002). According to social role theorists, the division of labor by gender contributes to the false belief that men and women have inherent differences that make them more successful in their gendered role (Clow, Ricciardelli, & Bartfay, 2015; Eagly, Wood, & Diekman, 2000). It is probable that, because nursing has traditionally had primarily women workers and medicine has traditionally had primarily men workers, gender stereotypes of the professions have developed (Clow, Ricciardelli, & Bartfay, 2015; Hoffman & Hurst, 1990). The feminine stereotype centers around communal attributes including concern for others, affiliative tendencies, deference, and emotional sensitivity while the masculine stereotype centers around agentic attributes including the drive to achieve, desire to take charge, independence, and rationality (Heilman, 2012).

A successful nurse has many agentic characteristics. Along with caring for others, being able to work successfully in a group, and being empathetic enough to be tuned in to patient needs, the professional nurse exhibits many agentic qualities. The nurse needs considerable drive to acquire the nursing knowledge base, the capacity to lead, the ability to make many independent decisions throughout each day, and he or she needs to accomplish all of this as efficiently as possible. There seems to be a disconnect between the perceived abilities of nurses and the actual abilities they must have to be successful in the profession.

There is a possibility that the feminine stereotyped traits ascribed to nursing are contributing to the maintenance of power hierarchies (Bell, Michalec, & Arenson, 2014). Men have more structural power (derived from their traditional roles in government, business, the

military, and medicine) and women have more dyadic power (derived from close relationship influences) (Diekman, Goodfriend, & Goodwin, 2004). According to Diekman, Goodfriend, and Goodwin (2004), "[M]en's sources of power lead to greater control over their own choices and over other people's outcomes" (204). Moreover, women and men who enter roles typically dominated by the other gender are frequently viewed negatively (Heilman et. al, 2012; Skewes, Fine, & Haslam, 2018; Tinsley, Howell, & Amantullah, 2015). Male nurses are thought to have entered nursing because they failed to meet the requirements for being a physician (Bradley, 2011).

The Need for Change

Interprofessional education has long been thought of as the answer to the problem of dysfunctional interprofessional collaboration among health care professionals. Interprofessional education initiatives have grown steadily over the past thirty years or more with the bulk of the published research dedicated to three areas of impact: immediate/short-term changes in individual's knowledge, skills, and attitudes; changes in practice-based process; changes in intermediate policy at the organizational level (Brandt, Lutiyya, King, & Chiroeso, 2014). Few articles about IPE explicitly examine "the power dynamics that IPE is meant to address" (Paradis & Whitehead 2015). The absence of the discussion of power and conflict suggests that educators are either not attending to issues of power, or that they are addressing those issues "in a subdued manner, without using vocabulary that is 'charged' and that may alienate key stakeholders in the effort" (Paradis & Whitehead, 2015, p. 405). Structural and organizational issues have been problems in interprofessional collaboration and IPE has been misused as solutions to those problems. (Paradis & Whitehead, 2015).

Experiential Context

In this authors experience, communication among nurses, physicians, technicians, and other hospital staff is frequently not conducive to collaborative practice. It was a common occurrence for this author to witness disrespectful discourse and there appears to be a tacit acceptance of this style of communication between professionals on different levels of the health care hierarchy. As a woman and a nurse, this author casually observed that there seemed to be parallels between problems women experience in communication with men and the problems nurses experience in communication with physicians. After reviewing the literature on power and hierarchy in health care, it became apparent that more information was needed on the topic of the gendered professions of nursing and medicine to be able to positively change the oppressive dynamics that seem to be impeding interprofessional collaboration in the practice setting.

Theoretical Framework

Critical theory is a "foundational perspective that grounds emancipatory knowing" (Chinn & Kramer, 2011, p. 69). Critical theory examines the roots and results of social inequalities that privilege select groups (Carnegie & Kiger, 2009; Chinn & Kramer, 2011). A critical qualitative research strategy, critical realist grounded theory, is employed in this study. Critical qualitative research seeks to clarify the root cause of a phenomenon and the relationship between that root cause and the broader social underpinnings shaping and maintaining the phenomenon (Bhavnani, Chua, & Collins, 2014). The critical researcher seeks to achieve an emancipatory goal by linking a phenomenon to the underlying generative mechanisms. Hesse-Biber (2014) state, "The very essence of critical theory is to respond and adapt to perceived

power relations and resulting subjugations and oppressions of individuals and groups" (pp. 54-55).

Critical theory guides this research toward the goal of explicating the power relationships among physicians and nurses to improve collaborative patient care. Social dominance theory (SDT) is a tool that can help accomplish this task by focusing in on both individual and structural factors that contribute to group-based social oppression (Sidanius, Pratto, van Laar, & Levin, 2004). Sidanius et al. (2004), "Rather than merely asking why people are prejudiced, why they discriminate, or why they believe the world is just and fair, social dominance theory asks why human societies tend to be organized as group-based hierarchies" (p. 850). According to Sidanius et al., (2004), long-term group discrimination happens because social beliefs and ideologies support the actions of both institutions and individuals. People share the beliefs that legitimize power hierarchies and behave in ways to support institutional and individual allocation; members of more powerful groups act in their own interest more than the members of less powerful groups (Sidanius et al., 2004; Sidanius & Pratto, 1999).

Social dominance theory calls for "conceptual integration" of not only individual differences but differences at the institutional level to understand power differences among individuals as members of social groups (Sidanius, et al., 2004, p. 871). The method calls for the examination of discourse, active consideration of culture, and finding shared meaning systems that underpin relationships (Sidanius, et al., 2004). Social dominance theory was employed to guide this study. To examine the culture of collaboration among physicians and nurses a literature review of interprofessional collaboration was conducted. To further understand the discourse of power and hierarchy in the fields of nursing and medicine, a concept analysis was undertaken. To examine the shared meaning systems underpinning subjugating behavior in

health care, a mixed-methods study designed to find underlying essential beliefs and attitudes of nursing and medical students related to the gendered professions of nursing and medicine was conducted.

Statement of the Problem

Changing power dynamics involves redistributing decision-making authority (Stone, 2012). There is widespread agreement that medical hierarchies need to be 'flattened' for meaningful interprofessional collaboration to occur but there is no real consensus on how this should be accomplished.

Rabow (2015) contends that there is a hidden curriculum in medical school, one that is not explicit but tacitly reinforced by learning from their peers and their instructors, and that hinders interprofessional relationships.

> Students often learn about a traditional model of medicine that posits the physician as an independent, infallible hero. Fitted in this model is the tendency toward paternalism as well as medicine's slow uptake of interprofessional education. The model insists that physicians know what is right, are central, and ultimately are more important than other clinicians in the care of patients. Physicians are taught to be individuals, be in charge, not seek help, and be sufficient unto themselves (Rabow, 2015, p. 135)

Physicians occupy the role of leadership in health care and the stereotype of a leader is decidedly masculine (Koenig, Eagly, Mitchell, & Ristikari, 2011). In their study of the extent to which stereotypes of leadership is structurally masculine, Koenig et al. (2011) found that "Specifically, people viewed leaders as quite similar to men but not very similar to women, as more agentic than communal, and as more masculine than feminine" (p. 634). As medical students are socialized into their role as a physician, leadership is a curricular focus; however,

traditionally feminine communal communication and relationship skills, important aspects of effective leadership, are frequently neglected or discouraged (Rabow, 2015). During medical school, students become increasingly paternalistic and experience "disapproval, mistrust, and negative judgement towards laypersons" (Michalec, 2012, p. 267), resulting in a loss of empathy (Rabow, 2015). Medical school moves students towards agentic pursuits and away from communal views (Rabow, 2015). Paternalistic attitudes contribute to power hierarchies not conducive to collaborative practice (Paradis & Whitehead, 2015).

Nursing has traditionally been thought of as a feminine profession centered around historically female roles of caretaking (Bell, Michalec, & Arenson, 2014). There is a possibility that because of the feminine stereotype of nursing, negative social consequences related to societal marginalization of women in the workplace impact nurses' ability to be effective in collaborative practice situations.

Examination of the power dynamics at work in perpetuating health care hierarchy-related interprofessional collaboration problems is needed to rationally develop strategies for developing health care providers competent in interprofessional collaboration. There is a need to more fully understand the social processes that contribute to maintaining power imbalances affecting collaboration at both the institutional level and the individual level if health care educators are to accomplish the goal of training health care workers to work effectively with one another to improve patient care outcomes.

Research Question

A mixed-method study was conducted to answer the research question, *What are the intrinsic beliefs, assumptions, and power hierarchies related to gendered perceptions of the professions of nursing and medicine by students of those professions?*

Implications for Nursing Research, Practice, and Policy

Nursing has developed as a distinct profession with its own sphere of expertise, but power differentials exist with the profession of medicine continuing to dominate over the profession of nursing. There is an opportunity to reduce power differentials and their impact on interprofessional collaboration through the thoughtful implementation of IPE designed to address these barriers to effective, collaborative patient care.

Interprofessional education interventions for pre-licensure students could be designed around lessons taken from the field. For example, IPE could be specifically designed to teach students about hierarchy, power, and the interconnectedness of implicit bias and organizational structure. Students could have lessons with the goal of discovering influences directly affecting their behavior and beliefs and then connect these self-discovery activities to actions within their own experiences in clinical settings. If the goal of "a level playing field" is to be achieved (RWJF, 2015), students need to thoroughly understand all of the roles and value-added by each of the professions in the provision of excellent patient care and then be able to incorporate their knowledge into effective interprofessional collaboration. Students not only need to have interprofessional experiences, but these experiences should be thoughtfully designed to reduce power imbalances that impede effective collaboration. Understanding more about how and why power differentials are maintained will move health care professions toward the goal of effective interprofessional collaboration and will provide needed information for effective interprofessional education curriculum design.

Summary

This chapter provides a brief overview of the need for improving interprofessional collaboration in the health care workforce. A major barrier to effective collaborative practice is

the existing medical power hierarchy (Supper, et al., 2014). The nurse-physician relationship is historically patriarchal and is believed to be maintained by mainstream gender beliefs (Bell, Michalec, & Arenson, 2014). Historically, nursing has been dominated by women and medicine has been dominated by men making it possible that power inequities related to people's intrinsic beliefs about men and women impact the power inequities between nursing and physicians in a negative fashion. To examine the intrinsic, gender-related beliefs about the professions of nursing and medicine, a mixed-methods study utilizing critical grounded theory as a foundational perspective was conducted. The purpose of the study is to gain a greater understanding of how power differentials between nursing and medicine are maintained.

CHAPTER 2

REVIEW OF THE LITERATURE

According to the World Health Organization [WHO] (2010) and the Interprofessional Education Collaborative [IPEC] (2011), the ability to effectively collaborate with other professions is a fundamental clinical competency. The persistent dominance of health care by physicians, with the resulting power hierarchy, is thought to be a significant barrier to interprofessional collaboration (Bleakley, 2013; Bourgeault & Mulvale, 2006). Hall (2005) argues that each of the health professions [e.g., medicine, nursing, pharmacy] have different beliefs, values, behaviors, and customs and these are barriers to interprofessional collaboration, when coupled with power differentials. Despite frequent mention of power hierarchies as barriers to interprofessional collaboration in the literature, interprofessional educators are not addressing power and conflict (Paradis & Whitehead, 2015).

> "The fact that power and conflict are absent from the vast majority of articles written about IPE suggest that educators and researchers are hesitant to engage with the difficult yet undeniable truth that power structures shape health systems and health professional interactions." (Paradis, & Whitehead, 2015, p. 405)

It is not reasonable to expect that educators will be able to improve interprofessional clinical competencies while ignoring the reality that power dynamics between individuals and professions significantly impact outcomes (Paradis, & Whitehead, 2015). An analysis of power hierarchies in health care to better understand the power dynamics at work will assist health care educators in addressing these problems in their curriculum. Understanding the forces that keep

physician dominance a hindrance to improving collaboration may prove valuable in effecting a change.

In this chapter, a review of the literature was undertaken to gain greater understanding of the barriers to improving interprofessional collaboration. Identifying the factors that influence behavior among health care professionals is important in developing potential measures to produce changes resulting in improved patient outcomes. Health care professionals include nurses, physicians, nurse practitioners, physician's assistants, physical and occupational therapists, social workers, pharmacists, and dieticians. For the purpose of this review, only nurses and physicians will be included. The review of the literature focuses on the barriers to physician/nurse interaction in collaborative practice. Pursuant to the themes that developed during the review of the literature, a further concept analysis of what hierarchy means in the relationship between physicians and nurses was completed.

For the purpose of understanding the influences in physician-nurse collaboration, searches of the CINAHL, PubMed and Academic Premier databases were conducted using the following keywords: interdisciplinary, multidisciplinary, and interprofessional collaboration. Articles published between 1997 through 2017 were included in the search as this period represents the bulk of the development of both the international and domestic interprofessional collaborative initiatives. Searches for interprofessional collaboration and interdisciplinary collaboration yielded mainly the same body of literature. The search was narrowed with the addition of the keywords 'teamwork' and 'barriers' and including only those articles written in the English language.

More than 550 articles were assessed for topical relevance. Of these, 15 articles were selected for review and are listed in Appendix A. Articles selected for topical relevance were

summarized and categorized according to the year of publication, the country of origin, the title of the paper and first author, and the purpose of the paper. Topical relevance inclusion criteria included those articles with a discussion of barriers to interdisciplinary collaboration, multidisciplinary collaboration, or collaborative teamwork between physicians and nurses, within the context of clinical care. Synthesis of the literature is organized into three primary themes that emerged during the review: the development and maintenance of professional hierarchies; social identity development of nurses and physicians; and structural/environmental influences on effective collaborative practice.

Analysis for clarification of imperfectly understood concepts is often used in theory development. Highlighting attributes and characteristics that contribute to a concept's unique usage is useful when seeking common understanding (Walker & Avant, 2005). In this paper, a modified approach of Walker and Avant's (2005) concept analysis is employed to help clarify what hierarchy means in the relationship between physicians and nurses. A review of literature in the fields of medicine, nursing, and interprofessional education was undertaken using PubMed, CINAHL. Using the search terms, "power", "hierarchy", "interprofessional relationships", "interprofessional communication", and limiting selection of articles to the discussion of physician and nurse relationships, 86 articles were selected for review. Hand searching of bibliographies yielded seminal works which were incorporated in the review.

Development and Maintenance of Professional Hierarchies

Health care hierarchies. Hierarchies are a common feature of social organization in every society (Friesen, et al., 1999). Social hierarchies within the health care system consists of vertically stratified groups of professions. Hierarchies "provide rules about who should be doing what and describe a predictable pattern of relations among group members" (Friesen et al.,

2014). Groups higher in social hierarchies have more power and decision-making authority than groups ranking lower (Friesen et al., 2014). Power dynamics between the higher-ranking physicians and lower-ranking nurses are reflected in individual's perceptions of power and status within the health care team (Hart, 2015) and is possibly "the main conceptual barrier hindering collaboration" (Supper, et al., 2014).

Professions of nursing and medicine in the 20th century. Interprofessional collaboration takes place "within a broader and complicated socio-historical context" and there is a need to "address existing historic practices that have led to the current status quo" (Reeves, MacMillan, & Van Soeren, 2010). The development of intergroup inequalities between the silos of medicine and nursing is rooted in the historical development of the professions (Reeves, MacMillan, Van Soeren, 2010).

Historical development of the medical profession. The modern medical profession grew out of the tradition of craft guilds of Europe. Guilds had restricted membership, exclusive training programs, and were primarily established to protect the ownership of specialized knowledge. During the age of enlightenment, ownership developed over time into the concept of professionalism and expanded to a jurisdictional claim to science during the 1800s (Reeves, MacMillan, & Van Soreren, 2010; Starr, 1982). In the early part of the 20th century, the Flexner Report (Flexner, A., 1910), funded by the Carnegie Foundation, was instrumental in establishing a single standard for medical education in the United States. University-based medical education, rooted in scientific methodology, consolidated the knowledge domain of physicians and solidified social authority of the profession through licensing and regulation in the name of civilized progress. Physicians began to build their profession through the establishment of licensing laws and strengthening their collective organization, always seeking

to maintain their autonomy in controlling the physician-patient relationship (Starr, 1982). Flexner (1910) stated the need to regulate child-birth in the United States:

> Even at the present time, among less civilized people, any old woman is allowed to be a midwife. Among more civilized races, differentiation has taken place and childbirths are attended by women of special training who are midwives by diploma. In the case of nations still more civilized, the trained midwives are directed by obstetric physicians who have specialized in the conducting of labor. (p. 154)

During the 20th century, the medical profession succeeded in building their control of the medical care market by exercising unprecedented control over the division of labor within the field. The need for efficiency in providing increasingly complex care necessitated the development of occupations in modern clinics, hospitals, and laboratories and the medical profession exercised decisive control of that development (Starr, 1982). Physicians wanted to maintain their "monopoly of competence" and needed trained, skilled help but did not want threats to their authority.

> The solution to this problem – how to maintain autonomy, yet not lose control – had three elements: first, the use of doctors in training (interns and residents) in the operation of hospitals; second, the encouragement of a kind of responsible professionalism among the higher ranks of subordinate health workers; and third, the employment in these auxiliary roles of women who, though professionally trained, would not challenge the authority or economic position of the doctor. (Starr, 1982, pp 220-221)

Formal professional organizations devlop hierarchies through the establishment of statements of values, codes of ethics, and other ideological, cultural elements (Acker, 1990).

Hierarchies in the United States' health care systems have been heavily influenced and shaped by several professional organizations, most notably, the American Medical Association [AMA] (Starr, 1982). The AMA was established in 1846 as an outgrowth of young physicians struggling with competition from untrained practitioners, seeking to gain some power and control over their profession (Starr, 1982). After establishing a code of ethics, the organization struggled to overcome the traditions of the time and gain cultural and professional acceptance throughout the last half of the 19th century (Starr, 1982.)

The AMA's struggle for professional sovereignty took place within the larger spheres of societal structures. During the early 20th century, the rapid growth of corporations redistributing wealth and power, improvements in communication and transportation, spurred the growth of professional organizations across the country. The AMA restructured in 1901 and moved from a competitive orientation to a group-oriented organization. Fraternities of physicians began to serve as gatekeepers to the profession and educational reform became a priority to solidify control of the occupation and wrest power from large corporations controlling wages (Starr, 1982).

During the first decades of the 20th century, physicians resisted being subsumed into the culture of industrial capitalism and led the way in converting most hospitals to a non-profit model, keeping their autonomous standing. As medicine became more specialized and hospitals began to modernize and grow, divisions of labor resulted. Starr (1980) states,"[Doctors] wanted to be able to use hospitals and laboratories without being their employees, and consequently, they needed technical assistants who would be sufficiently competent to carry on in their absence and yet not threaten their authority" (p. 220). Three strategies emerged: the use of interns and residents in hospitals; the creation of professional, albeit lower-ranked, health care worker

positions; and using professionally trained women who "would not challenge the authority or economic position of the doctor" (Starr, 1982, p. 221).

As American physicians solidified their professional sovereignty over health care in the first half of the 20th century, divisions of labor became more defined. Starr (1982) states, "Among physicians, the division of labor was only loosely regulated, but between physicians and other occupations, it was hierarchical and rigid" (Starr, 1982, p. 225). Physicians themselves view themselves as occupying a top rung in health care hierarchy and having authority over all aspects of patient care. (Starr, 1982) Many of them feel that they have earned the right to claim that authority (Baker, Lee Martimianakis, & Reeves, 2011). According to Baker et al. (2011), in interprofessional activities, physicians view themselves at the top of the hierarchy and are resistant to share decision-making power:

> Like a lot of physicians thought, I killed myself and destituted myself for years to achieve the training. . .and you're telling me now that I am going to. . .have to negotiate with every Tom, Dick and Harry. You know like somebody who went to say occupational therapy school for three years and I have been in school for twenty years . . . we are not in the same boat. . .(Physician 4). p. 101

Historical development of the nursing profession. Hospitals in the late 1800s were primarily charity-based organizations supported by churches and donations with a strong doctrinal base of moral stewardship and provision for the poor (Reverby, 1987). Influenced by the work of the English nurse-Florence Nightingale, American nursing was largely unorganized until the late 1800s when a movement to establish nursing as a knowledge-based profession began. (Gordon & Nelson, 2005) . Florence Nightingale developed a model of nursing training that focused on character and discipline believing that "a woman's nature and moral superiority

destined her for a special role in society" (Reverby, 1987, p. 42). The 19th-century beliefs that "moral, environmental, and physical order made the restoration of health possible" formed the backbone of her nursing training (Reverby, 1987, p. 42). Reverby (1987) states, "Training had to elevate and shape all the essential characteristics of the controlled and sympathetic, but nonsentimental woman. Training had to eliminate any hint of eroticism and its apparent concomitants: disorder, dirt, and immorality" (p 43).

As nursing leaders in the early 1900s sought to increase their autonomy and power in nursing, the ethic of altruism and duty to care by virtue of being a woman "could not become the basis for an ideological claim for control over the organization of nursing" (Reverby, 1987, p. 200). Increasing efficiencies through technology, division of labor, and educational reforms so successful in the male-dominated world of medicine had the effect of escalating conflict in nursing (Reverby, 1987). Schneider explains, "Nursing was thoroughly embedded and enmeshed in its relationships to other interested parties (physicians and hospitals) and a cultural-structural nexus of white, middle class femininity" (Schneider, 2016, p. 23). The strategy of the profession embracing a persona of altruism, charity, and purity hampered the ability to even discuss nurses' economic wellbeing without appearing crass or self-interested (Reverby, 1987; Schneider, 2016). With nursing tied so strongly to moral rectitude, it was difficult for nursing leaders to come to a preliminary agreement on how to professionalize nursing (Reverby, 1987, Schneider, 2016).

One hallmark of a profession is a legitimate claim to a sphere of competence or a work jurisdiction and an important first step in professionalizing nursing was the establishment of a professional association (Schneider, 2016). The early American Nurses Association (ANA), formed in 1911 out of a coalition of state nurses associations, helped to establish nursing's

sphere of expertise, established ethical tenets to guide nursing, and provided leadership in developing schools of nursing (ANA, 2014). While licensure and certifications in nursing helped to define and regulate the profession early-on, nurses remained fully under the dominance of the medical profession and some of the benefits professionalization brought to medicine eluded nursing. The president of the ANA, in an address to the convention in 1905, stated that the associations "find arrayed against them and their efforts an extremely conservative public, an antagonistic medical profession, and an indifferent nursing body" (American Journal of Nursing [AJN], 1905, p. 733).

Following the Flexner Report in 1910, there was a push to standardize educational requirements and licensing in nursing. The AMA was highly critical of the ANA efforts to professionalize nursing (AMA, 1960; Schneider 2016). The AMA Committee on Nurse Training reported in 1925,

> In the matter of nursing education, there has been a serious situation there in that there has been a tendency on the part of the nurses' organizations to get the whole problem of nursing education out of the hands of the medical profession. We are very anxious to maintain an important and proper relationship to nursing education. (p. 299)

The primary argument of the time centered on fundamental differences in how medicine viewed nursing. Physicians thought that nurses did not need education, rather they needed training in tasks. In the AMA Committee on Nurse Training Report in 1919, the authors stated that "[t]here is too little systematic instruction in practical work and too much theory, and certainly a lack of correlation between the two elements" (AMA, 1960, p. 299). Schneider states, "[T]he birthing years of the profession were significantly guided by the watchful paternalistic eyes of the medical profession who not only participated in nursing conferences

and consulted in internal decision-making, but often unilaterally determined nursing policies and practices within hospital settings" (p. 28).

The conservative views of the time included beliefs that men were more suited to cognitive pursuits and women were more suited to caring pursuits. These gendered demarcations deeply influenced the professions' professional identities and shaped the status and power hierarchy within health care (Schneider, 2016). Given the gendered identities of the professions, nursing as female, medicine as male, it is not surprising that efforts to establish nursing as a distinct body of knowledge with autonomy within its sphere of practice met with resistance. Nursing was embedded within a society that believed women belonged in subservient roles and were cognitively inferior to men (Melosh, 1982).

One task of professional associations is to dialogue with the public and establish the image of the profession. Nursing was almost exclusively a woman's occupation at the beginning of the 20th century and gender stereotypes had a significant impact on the development of nursing's public image (Price, Doucet & Hall, 2014; Schneider, 2016). The association of virtue and selflessness with femininity was an important historic factor in the professionalization of nursing (Schneider, 2016). The selfless ideal and the connection of nursing to womanhood was championed by early ANA and early nursing schools emphasized, good character, a service orientation, and the economic values of religious orders devoted to nursing (Judd, Stizman & Davis, 2010; Schneider, 2016). Subservience to physicians (who were predominately male) was also expected and promoted reflecting the era's societal expectation of women being subservient to men (Reverby, 1987; Schneider, 2016). While the nurse leaders tried to wrest the increasing control physicians had over nursing education and nursing employment, until the last half of the 20th century internal disagreements and lack of

widespread nurse support kept nursing under physician domination (Reverby, 1987).

> Physicians typically determined the nursing curriculum which diminished nurses' power in a few key ways. First, it explicitly gave doctors control over what nurses learned. Second, it implicitly allowed doctors to construct nursing education so that it was inferior to medical education. The less valued carework was relegated to nurses while the more prestigious scientific, technological projects were housed in medical education. (Bell, Michalec, & Arenson, 2014, p. 99)

It was not until the 1950s that the ANA prioritized moving nursing toward an identity as an autonomous profession rather than an occupation serving the needs of medicine. At that time they sought to organize as practitioners who not only regulated professional competence in nursing but who influenced society to grant nursing status as having a unique knowledge base and cultural authority within their sphere of influence (ANA, 2010; Matthews 2012). Nursing education began to move from hospital-based certificate programs to college-based degree programs with an emphasis on baccalaureate-prepared nurses. In the 1970s, as younger, better-educated nurses moved into the work-force, pay inequities and lack of workplace autonomy became political issues (Leighow, 1992). Leighow (1992) states, "Education in the community college or university both changed nurses' attitudes about the salience of work in their lives and gave them the tools to question and change nursing's position in the American health care system." (p. 102).

Nurse leaders at the ANA continued their work toward professionalizing nursing in the 1970s and were met with resistance from the AMA. While the AMA conceded that baccalaureate-level education was appropriate for educators and administrators, they encouraged and supported "all levels of nurse education", praising diploma and associate degree programs

(AMA, 1970), in direct opposition to the ANA position that all nurses should be baccalaureate-prepared. In addition to disagreeing with nurses needing a college education, physicians and hospitals resisted efforts for nurses' involvement in decision-making and increases in pay (Schneider, 2016). Leaders publishing in nursing journals began to equate the problems of power inequalities between nursing and medicine as stemming from physicians who "view themselves as a ruling class" and who believe "that nurses had to be intellectually and socially controlled" (Ashley, 1973, p. 23). The framing of the doctor-nurse conflict in a feminist context echoed the increasing feminist push-back rippling through the 1970s' increasingly female workforce (Leighow, 1992).

Nurses began to expand their sphere of expertise with the establishment of nurse practitioner training in the 1960s. By the 1980s, states began mandating graduate degrees for nurse practitioner practice, and by 2003, large numbers of nurse practitioners began to replace residents in many health care facilities. Currently, there are over 55,000 nurse practitioners practicing in primary care in the United States (Agency for Healthcare Research and Quality, Table 1).

The mid-20th-century movement of nursing education from hospital-based vocational training to university-based degree programs allowed nursing to refine and define the profession's sphere of knowledge thus increasing public perception of nursing as a distinct profession (Price, Doucet, & Hall, 2014). Although progress toward developing a professional identity has been made, nursing is still "socially positioned and understood as inferior to medicine" (Price, Doucet, & Hall, 2014, p. 105). Medicine is still seen as a full profession, while nursing is understood to be a subordinate profession (Abbot, 1988; Schneider, 2016). Recognizing these dynamics, rooted in history, is necessary if the socially embedded processes

of identity, power, and position affecting interprofessional collaboration between the two professions are to be changed.

Physicians and Nurses in the 21st Century

Recent concern about the growing number of nurse practitioners providing practicing independently prompted the AMA to pass a resolution in their 2017 annual meeting calling for opposition to the independent practice of non-physician practitioners (AMA House of Delegates, 2017). The AMA is striving to create a national strategy to "effectively oppose the continual, nationwide efforts to grant independent practice (e.g. APRN [Advanced Practice Registered Nurse] Consensus Model, APRN Compact)" (AMA House of Delegates, 2017, p. 15). The AMA believes that medicine should not be practiced independently "by any individual who has not completed the state's requirements for licensure to engage in the practice of medicine and surgery *in all of its branches* [emphasis added]" (AMA House of Delegates, 2017, pp. 14-15). This statement is consistent with the AMA's longstanding charge to keep medicine a sovereign profession through professional closure and keep firmly in control of the institutional structure of health care.

In 2010, the Institutes of Medicine (IOM) report *The Future of Nursing* (IOM, 2011) acknowledged that Advanced Practice Registered Nurses (APRN), despite being highly trained, were prevented from providing health care within their scope of practice due to state laws, federal policies, insurance reimbursement rules, and institutional culture and practices (National Academies of Sciences, Engineering, and Medicine, 2016). The IOM (2011) report called for the removal of scope-of-practice barriers and expanded opportunities for nurse leadership in collaborative improvement efforts and changes to advance help.

In 2011, the Robert Woods Johnson Foundation (RWJF) brought together leaders of nursing and physician organizations in an attempt to develop some consensus on interprofessional collaboration, which resulted in an unpublished report. Political conflict between nursing and physician organizations, centered around nurse practitioner's scope-of-practice, ultimately prevented the publishing and dissemination of the group's report. The draft report had reported the primary care provider shortage, the need for patient-centered care, stated that the professions of nursing and medicine are not interchangeable and that the "captain-of-the-ship notion needs to be refined for the 21st century" (RWJF, 2013, p. 3). Opposition by physicians and physician organizations continue to be a barrier to expanding APRN ability to work to the full extent of their education/training and impedes collaborative improvement efforts (National Academies of Sciences, Engineering, and Medicine, 2016).

While the number of APRNs has grown substantially, several forces at work in recent years also appear to be advancing the push for baccalaureate-prepared nurses. Many research studies have shown that patient outcomes and registered nurse's level of education are positively related (Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Aiken et al., 2014; Estabrooks, Midodzi, Cummings, Ricker, & Giovanetti, 2005; Friese, Lake, Aiken, Silber, & Sochalski, 2008; Zittel, Moss, O'Sullivan, Siek, 2016) and these results contributed to the 2010 IOM report recommending changes in policies to increase the proportion of baccalaureate-prepared nurses to 80% by 2020 (IOM, 2011, p. 12). The number of working nurses with a bachelor in science in nursing or higher increased from 49% in 2010 (Zittel, et.al, 2016) to 64% in 2017 (The American Association of Colleges of Nursing, 2019, p. 1).

Nurses' expertise center around health/illness as it is being experienced by the patient, and, as a result, nurses do not necessarily have the same patient-care aims as the science-driven

physician (Engel & Prentice, 2013). If a nurse would like a change in patient's treatment plan, generally they must use an evidence-based rationale to substantiate their request to physicians; however, a physician may or may not provide a rationale for a change to a patient's plan (Engel & Prentice, 2013). Engle and Prentice (2013) state:

> Collaboration is assumed to occur best within a power dynamic that acknowledges the capacity of the individual who best knows at the time to make decisions about patient care, which may well be the patient or a variety of health professionals, including the nurse or the physician in interaction with one another. (p. 432)

Prentice and Engle (2013) make the case that because physicians have historically, legally, and culturally been assigned decision-making in patient care, the resulting power differential will always prevent true collaborative care.

Social Identities

Kriendler et al., (2013) found structural inequalities when studying interdisciplinary interactions, specifically between doctors and nurses. Kriendler (2012) conducted a systematic review of the literature to study group dynamics and found reports describing how the power differential between physicians and nurses created patterns of interaction while others reported intergroup inequalities and group identity issues related to the social status of the professions. Kriendler (2012) stated, "Many authors stress the gendered nature of the doctor-nurse dynamic, tracing its origins to the subordination of women within the sexual division of labor" (p.348).

According to Kriendler, et al (2012), understanding intergroup inequalities within health care are essential. Kriendler et al (2012) states, "Without an understanding of [unequal power and status], naïve calls for 'teamwork' may actually reinforce professional divisions and hierarchies" (p. 354). Through a social identity framework, Kriendler et al (2012) found that:

health care providers strongly identify with their profession; and change processes instituted without regard to social identity dynamics produced little real change. The authors argue that identity reconstruction through meaningful context should be considered a way to institute change in health care silos, and thereby improve collaborative practice.

Intergroup inequalities: The doctor-nurse relationship. Stein's (1967) article, "The Doctor-Nurse Game", was the first widely recognized work discussing the parallels between "stereotyped roles of male dominance and feminine passivity" (p. 703) and the nurse-physician relationship. Stein (1967) described a nuanced verbal dance between nurses who needed to share information vital to patient well-being, and physicians, whose status as the omniscient intellectual would have been threatened by any direct communication of unmet needs. Stein (1967) stated,"The nurse is to be bold, have initiative, and be responsible for making significant recommendations, while at the same time she must appear passive" (Stein, 1967, p. 699). Stein, Watts, and Howell (1990) revisited the doctor-nurse game and spoke to strides made in nursing toward asserting their professional identity and physicians losing some of their "god-like public personas", but maintained that, in many arenas, the "game" was unchanged.

To investigate changes over time, Pillitteri and Ackerman (1993) compared doctor-nurse collaborative interactions via journals kept by two physicians, one from 1888 and one from 1990. Both physicians were hospital staff in Buffalo, New York. The qualitative study analyzed teaching-learning relationships, responsibilities, socialization, and division of authority between the physician and the nursing staff. Pilletteri and Ackerman (1993) reported finding more similarities than differences in nurse-physician relationships over time. Both the 1888 and the 1990 physicians perceived assertiveness by nurses negatively and claimed authority in patient care situations. The 1888 journal revealed more collaboration between

nurses and physicians than the 1990 journal (Pillitteri & Ackerman, 1993). Pillitteri and Ackerman (1993) identified that the changes are reflective of differences in how nurses are educated now. In 1888, residents and nurses were educated in the same hospital where residents had a teaching role with nursing students and this changed the dynamics (Pillitteri & Ackerman, 1993).

Weeks (2004) studied both written and verbal interprofessional communication between physicians and nurses in the acute care setting using critical discourse analysis (CDA). Weeks (2004) found that when investigating the rationale for ineffective communication patterns, themes that emerged included historically rooted gender issues, socio-economic status inequalities, education, and employment status. In the empirical literature, the primary theme involved ineffective nurse-physician communication patterns which were negatively impacting patient care. Within interpretive literature, the theme remained ineffective communication patterns, although the focal point was understanding the communication patterns. There was a lack of critical discourse with the potential to lead toward improving nurse-physician communication (Weeks, 2004). When discourse involved improving communication patterns, the focus was on nurses understanding and modifying communication, not physicians. The existing power differences and social status of physicians were not challenged. Weeks (2004) maintains that understanding the forces that shape the discussion of nurse-physician communication will bring clarity to what factors reproduce the inequities and dominance patterns impeding the call for action for transformed health care delivery.

Bell, Michalec, and Arenson (2014) explored the topic of stalled progress of interprofessional collaboration and contended that the historically patriarchal nurse-physician relationship cannot be separated from the relationship between men and women. They found

that the health care hierarchy is naturalized and justified by mainstream ideas on gender and, regardless of changes in medicine and nursing over the last 100 years, the hierarchical structure of health care remains essentially unchanged. Women have entered the field of medicine, yet men retain the power within the profession reflecting the impact of unchanged ideological social hierarchies, including gender (Bell, Michalec, & Arenson, 2014). The authors examined gender status and the medical hierarchy and found that not only individuals were gendered, but organizations were gendered as well. Gender inequalities that are built into the structure of workplaces including pay, working hours, promotional practices and policies have the effect of privileging men (Bell, Michalec, & Arenson, 2014). The status values that are assigned to men and women translate into status values assigned to the job as well so when a job is labeled feminine, it is worth less than a job labeled masculine (Bell, Michalec, & Arenson, 2014). The gendered organizational status of feminine nursing and masculine medicine in the performance expectations of team members, as well as the individual's gender status, have a significant impact on health care collaboration (Bell, Michalec, & Arenson, 2014).

Ferraris-Baron (2017) explored gender bias in the evaluation of successful physicians:

> [T]here is a stark pay gap between what male and female physicians earn. Women physicians suffer the largest gender pay gap of any of the professions, earning only $0.62 for every $1.00 a male physician earns (US Census Bureau, 2010). Female physicians and surgeons make 79% of what their male colleagues earn; and even though women are the majority of pediatricians, they earn 66% of what their male counterparts earn (Boulis & Jacobs, 2010; Bureau of Labor Statistics, 2011). Reflecting the pattern of horizontal segregation, women are disproportionately overrepresented in lower paying specialties. For example, pediatrics, one of the only specialties dominated by

> female physicians, is also one of the lowest paying specialties (Williams et al., 2013). The income disparity between male and female physicians remains even when controlling for age, education, specialty, and hours worked. This remaining income gap and paucity of women in leadership positions is reportedly not fully understood and even "perplexing" to medical scholars and practitioners. (Darvies, 2012, p. 3)

Bell, Michalec, and Arenson (2014) make a salient case for gender impacts on the efforts to improve interprofessional communication. The authors provided a theoretical and historical analysis, however, more investigation is needed to understand the dynamics in nurse-physician collaborative practice more fully. Discussions of barriers, including those hampering the implementation of the national goal of interprofessional collaborative practice are limited, unsystematic, and not grounded in theory (Bell, Michalec, & Arenson, 2014; Lewin & Reeves, 2011; Macmillan, 2012).

Differing perceptions of collaboration. House and Havens (2017) found that effective collaboration was viewed differently between groups of physicians and nurses. In House and Havens' (2017) systematic review of perceptions of nurse-physician collaboration, the authors found there was no standard, operational definition of collaboration. Sollami, Caricati, and Sarli (2015) conducted a meta-analysis of the differences between nurses and physicians in rating collaboration and found that nurses valued collaboration more than physicians, while physicians perceived more existing collaboration than nurses did.

Haddera and Lingard (2013) conducted a discourse analysis of interprofessional collaboration and found two major discourses in the literature; utilitarian and emancipatory. The language used in utilitarian discourses suggests an "epistemological stance of positivism" while the stance of the emancipatory discourse was "critical and constructivist" (Haddera & Lingard,

2013, p. 1513). Haddera and Lingard (2013) state, “The emancipatory discourse constructs [interprofessional collaboration] as a means of empowering health professions that are traditionally subordinate to medicine in the health care division of labor; namely, in our review, nursing” (p. 1513). Literature with a utilitarian discourse discussed collaboration as a tool to achieve better patient outcomes, where emancipatory discourse viewed collaboration as a means for reshaping “a social reality in need of radical change (Haddera & Lingard, 2013, p. 1513). The authors concluded that they found no clarity on what constituted interprofessional collaboration in the literature.

The results of an ethnographic study conducted in intensive care units (ICUs) indicated that while interprofessional work within the ICUs was frequently described as “teamwork (shared team identity, clarity, interdependence, integration, and shared responsibility)”, the actual interprofessional interactions did not fit that description (Alexanian, Kitto, Rak, and Reeves, 2015, p. 1885). Alexanian, et al (2015) described the majority of interprofessional interactions as collaboration (interaction on specific issues), coordination (parallel or shared work), or networking (meeting as needed to share expertise). Alexanian, et al (2015) additionally observed that the dominant role of medicine impacted ICU routines and hierarchies. Alexanian, et al stated, “The hierarchical and noninclusive interactions that we observed do not suggest that the ICUs exhibited a failure of teamwork, but rather, forces us to consider how professionals work together in the delivery of patient care outside such a frame altogether” (p.1885).

Structural Attributes

Interprofessional collaboration requires the opportunity for individuals to interact with one another. Bleakley (2013) theorized that hospital corridors are “essential for improvised interprofessional collaborations, where hierarchical habitats are suspended and a form of

collaborative assembly democracy emerges, albeit improvised and unaccountable" (p. 29). Bleakly (2013) describes Foucault's 1963 analysis of medical dominance through the territorialization of the human body and control of the public's health by the government rather than by households. Bleakly (2013) argues that events are occurring that will "dislocate medical dominance and the medical gaze" (p. 26) through nursing role expansion, distribution of diagnostic processes to other professions, a crisis in public confidence in medicine as a profession, increased ambulatory care, the patient-centered movement, and the feminizing of medicine. Bleakley (2013) argues that interprofessional activities happen in hospital corridors and "as a marginal space, a corridor exerts a power of *resistance* to the dominant sovereign power of conventional meeting spaces" (p. 28) and may be "essential for improvised interprofessional collaborations, where hierarchical habits are suspended and a form of collaborative assembly democracy emerges, albeit improvised and unaccountable." (p.29).

Costa, Barg, Asch, and Kahn (2014) described accessibility as a facilitator of interprofessional collaboration. In a multicenter qualitative study, Costa et al. (2014) sought to identify domains of interprofessional collaboration in intensive care units (ICUs) that could be assessed quantitatively in future research. Using a thematic content analysis, Costa, et al. (2014) found the following themes were associated with interprofessional collaboration: cultural facilitators; trust in leadership; and structural facilitators. Cultural facilitators were defined as a being available and willing to help a teammate on the ICU, trust, and valuing other professional's opinions (Costa, et al, 2014). Trust in leadership was described as having the same vision and cultural values as others on the health care team (Costa, et al, 2014). Structural facilitators were described as clinical protocols, checklists, daily round, information technology

(Costa, et al, 2014). Being able to access another professional when needed was seen as central to the provision of patient-centered care (Costa, et al, 2014).

> They have a doctor of the day…[who], starts in the ICU. So … you're going to have your doctor for the whole day, whether they're med/surg patients or cardiac patients that doctor is going to be handling. We can walk up to those physicians and just talk to them. (p. 332)

In an ethnographic study using a sociologic perspective, Goldman et al. (2016) sought to gain an understanding of structural factors patient discharge planning in general internal medicine hospital units. Goldman et al. (2016) found that in acute-care discharge planning, opportunities for interprofessional collaboration were found to be "dependent on rounds routines, referral practices, and opportunistic interactions" (Goldman et al., 2016, p. 222). These interactions were not always sufficient to provide accurate interprofessional input into the discharge planning process because appropriate personnel were not always present or the interactions were so informal that they may or may not have met about a patient (Goldman et al., 2016). Additionally, limited physician-nurse interaction time caused communication delays which impacted nursing's ability to communicate with patients regarding discharge planning (Goldman et al., 2016). Nursing leaders in the study felt that organizational barriers, including nurses not being able to leave the bedside to participate in rounds, impeded the integration of bedside nurses into interprofessional interactions (Goldman et al, 2016).

Concept Analysis of Hierarchy in Health Care

According to *Merriam-Webster's Online Dictionary,* the word hierarchy stems from the Greek word hierarchē describing a system of orders of angels (Hierarchy[a], 2018, para. 2). The current meaning is "a system in which members of an organization or society are ranked

according to relative status or authority" (para. 1). Synonyms including pecking order, ranking, grading, social order, class system, connote a value-laden, group-based social construct with some groups having cultural authority over others (Hierarchy[b], 2018, para. 1)

Hierarchies in health care are a topic of interest for medical sociologists. Anspach (2010) studied economic power in health care, "At the top of the salary hierarchy are the predominately white and male health professions" (Anspach, 2010). Included were physicians, surgeons, radiologists, chiropractors, dentists, and veterinarians. In the middle salary range, the largest group of providers were primarily white, female registered nurses (Anspach, 2010). According to Anspach (2010), "Finally, at the lowest level – health service workers [including nursing, psychiatric, and home-health aides], many of whom are women of color – women represent 90 percent" (Anspach, 2010, 231). Gender stratification was also found:

> In addition, the medical subspecialties are themselves internally stratified by gender. Very few women enter the most lucrative surgical subspecialties, such as orthopedic surgery. Within internal medicine, the proportion of women is lowest in cardiology and gastroenterology, subspecialties similar to surgery in their use of procedures and their salary structures. (Anspach, 2010, p. 231)

Economic hierarchies do not solely define health care hierarchies. In addition to economic power, social and cultural authority place physicians at the top of the health care hierarchy (Starr, 1982). Social authority is conferred with the acquisition of specialized knowledge, giving physicians power over who gets healed and how it is accomplished (Starr, 1982). Cultural authority is gained through the construction of very nature of what constitutes illness and health via discourse at both the macro and microlevels (Waitzkin, 1989; Starr, 1982, Foucault, 1973). At the macrolevel, medicalization of a wide range of human experiences has

changed the very definitions of health (Barker, 2010) while at the microlevel, patient/physician interaction patterns discourage discussion of any non-technical issues (Waitzkin, 1989) and reinforces the medical status quo of what constitutes health and illness (Barker, 2010). Given the physician's unique position of being in possession of knowledge necessary to an individual's life or death, the cultural power this profession possesses is greater than any other (Starr, 1982).

Antecedents, Attributes, and Consequences of Power in Health care

Table 2.1 is an abbreviated, selective list of the antecedents, attributes, and consequences of power in health care gleaned from the disciplines of nursing, medicine, and interprofessional education.

Table 2.1
Antecedents, attributes, and consequences for power in health care.

Antecedents	Attributes	Consequences
• Professional recognition • Disciplinary boundaries • Control of knowledge related to health/illness • Gender bias	• Social authority • Cultural authority • Autonomous • Male dominated • Resistant to change	• Unilateral decisions • Collaboration barriers • Resources allocated based on one view • Less innovation • Reduced job satisfaction in health care workers with lower status

Antecedents. Physicians, at the top of the health care hierarchy, have the most power. Power is conferred to them through *professional certifications* attesting to their social authority, and their membership in a discipline that carefully guards its *professional boundaries*. The *ownership of knowledge* directly relating to life and death gives physicians power both

individually and collectively with control of medical discourse *Gender bias*, with medicine historically a male profession and nursing a female profession, contributes to power hierarchies in health care.

Attributes. Physicians were described as having the power to refer and delegate responsibilities for patient care and as being at the top of the chain of responsibility for the patient (*social authority*). The sphere of influence on health care was much larger for physicians than for nurses. Even if a nurse is highly skilled in a health care provision area, physician decisions have historically superseded those of the nurse. Physicians dominate not only patient care decision-making but *control over resources*. Medicine has resisted any incursion into the division of health care responsibilities and values their *autonomy*.

Model Case of Hierarchical Power in the Clinical Setting

> *A patient is in the operating room ready to undergo a surgical procedure under general anesthesia. The anesthesiologist, surgeon, circulating nurse, surgical technician, and a medical student are present. As the surgeon begins, the circulating nurse reminds him that the time-out checklist has not been completed and needs to be done before he can start. The surgeon, a middle-aged man with a number of years of experience, raises his voice and loudly proclaims that the nurse can just do her job, catch up with him, and he will do his. He begins the procedure without the required Time-Out Universal Protocol being completed. The nurse says nothing. No one says anything. The nurse is angry, feels that his tone and language were demeaning and inappropriate, and resents that she can essentially do nothing about his abusive behavior and the fact he put the patient at risk. This isn't the first time the surgeon has done this in the operating theater. The nurse reported his behavior to her supervisor after the previous incident and was*

told that "That is just the way he is. You'll get used to him. He isn't the nicest person but he is the best thoracic surgeon we have. The patient is OK so just drop it."

The model case illustrates the power physicians have in health care provision. The surgeon's position in the medical hierarchy gave him the power to circumvent policy and *decide* to do what he wanted and do it in a bullying, threatening manner, without consequence. The hospital administration was aware of his disrespectful behavior to other health care providers, but because of his *expertise*, he was allowed to behave badly and make up his own rules. He was *above reproach* and made *autonomous* decisions. The surgeon, anesthesiologist, and medical student were all male. The nurse and the surgical tech were female.

Borderline Case – Physicians Power in Discourse of Health/Illness

My son, severely disabled with autism, is 38 years old. We have really seen a lot of change since he was diagnosed in 1983. At that time, physicians were taught a theory by Leo Kanner, a psychiatrist, claiming autism was caused by "refrigerator mothers". Mothers were blamed, and doctors were taught that cold parenting and lack of attachment caused autism. Autism was medically and legally classified as a mental illness. I remember the first psychologist I spoke with after Andrew's diagnostic testing. He said, "I don't know what you've done to cause him to be like this, but….", then he proceeded to tell me that the damage was done and I should probably send him to a care facility. Wow! What a kick in the gut. I knew he was way off base and by the time Andrew was eight or nine years old, there was a nationwide push to get autism legally recognized as a developmental disorder rather than a mental illness. Kanner's theory started to go out of favor. This was wonderful…it opened doors previously closed to us and I was finally able to get some respite services, but more than that, it started to

change how we were treated by doctors, educators, insurance companies, and even our neighbors. Who would have thought that a medical definition could literally change our lives, after all, Andrew is who he is, and labeling shouldn't be that important. But insurance companies and social programs don't cover mental illness like they do developmental disabilities. These can make a big difference in the health and wellbeing of a person with autism and their family.

This case illustrates the power physicians have over the health and well-being of people through their control over public discourse of all things medical. Mental illness and developmental disability have widely different social constructions causing all sorts of differences in public and private consequences. Currently, contested illnesses like Gulf War and chronic fatigue syndromes make headlines as patients seek to change the medical mainstream discourse and 'legitimize' those disorders. Without the medical 'seal of approval', patients with these disorders will not have access to *resources* available to patients with problems recognized by the medical establishment.

Social Dominance Theory

Social dominance theory (SDT) states that humans have a general tendency to form and maintain group-based hierarchies. An effect of social hierarchies is the formation of group-based oppression in the form of negative stereotyping, prejudice, and discrimination (Sidanius et al., 2004). Social dominance theory also seeks to understand why human societies organize as group-based hierarchies (Sidanius & Pratto, 1999)

Social dominance theory integrates personality, political behavior, Marxism and neoclassical elite, social comparison, group positions, social identity, and evolutionary psychology theories (Sidanius & Pratto, 1999). Social dominance theory has been widely

applied in a variety of studies with robust findings that support its ability to explain social inequities. For example, SDT has helped explain such diverse issues as power, hierarchy and legitimizing myths in racial and ethnic stereotyping (Quist &Resendez, 2002), collective action to reduce racial inequality (Stuart & Tran, 2018), attitudes of Australians toward asylum seekers (Trounson, Critchley, & Pfeifer, 2015), and understanding women's risk for human immunodeficiency virus infection (Rosenthal & Levy, 2010).

In SDT, social ideologies help to coordinate the behavior of both individuals and institutions. People share beliefs and ideas that serve to legitimize discrimination and often behave as if the discrimination is right and just (Sidanius & Pratto, 1999; Sidanius, et al., 2004;). As a result, societies and individuals actively support and maintain the beliefs and ideas on which the oppression is predicated (Mitchell & Sidanius, 1995; Sidanius, et al., 2004). Additionally, members of the advantaged hierarchy group tend to act in their own interest more than to members of disadvantaged groups, a phenomenon named behavioral symmetry (Sidanius & Pratto, 1999; Sidanius, et al., 2004).

Social dominance theory the acceptance of inequality and behavior that produce inequality are legitimized partly by people's general preference for group-based dominance, a construct Sidanius, (2004) terms social dominance orientation. Understanding the degree to which this general preference varies among individuals and institutions helps in the analysis of discriminatory behaviors of individuals as well as the ideologies at work legitimizing discriminatory behaviors permeating social systems (Sidanius, et al., 2004).

Social dominance theory calls for "conceptual integration" of both individual differences and differences at the institutional level in order to understand power differences among members of social groups (Sidanius, et al., 2004, p. 871). Consistent with SDT, this study

examined the discourses in health care literature on the topic of interprofessional collaborative relationships and the concept of power to help understand the current views of health care hierarchy at the institutional level; and examined nursing and medical students' views of power and gender in nursing and medicine, and synthesized the findings to tease out the shared meaning systems that underpin subjugating relationships.

Summary

The medical profession has been successful in gaining and maintaining tight control over the provision of health care in the United States. Organizational forces have been successful in creating professional boundaries and building moral authority to support the medical hierarchy as it exists today. Organizational forces were less successful in developing nursing as a profession in the early 20th century due to widespread societal acceptance of gender-related biases. Nursing has developed as a distinct profession with its own sphere of expertise, but power differentials exist between the professions with medicine continuing to dominate. There is an opportunity to reduce power differentials and their impact on interprofessional collaboration through the thoughtful implementation of IPE designed to address these barriers to effective, collaborative patient care. Social dominance theory is a tool to integrate explanations of the complex social structures at work in the hierarchy of health care with the goal of understanding underlying causal factors contributing to negative outcomes associated with hierarchy.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Chapter three describes the methodology used in this study, including the research design, the population studied, the procedures followed, and the instruments used. Qualitative data was collected from nursing and medical students during focus group sessions. Quantitative data was collected via an online survey taken by both nursing and medical students.

Purpose of the Study

Throughout the world, effective interprofessional collaborative practice is thought to be an essential component of improving patient outcomes (World Health Organization [WHO], 2010). Effective interprofessional collaborative practice interventions continue to elude researchers and more studies are required (Reeves, Pelone, Harrison, Goldman, & Zwarentstein, 2017). In spite of widespread discussion in professional literature and discourse, progress has been slow in changing current patterns of interprofessional collaboration in practice (Baker, et al., 2011). Essential components of collaboration in health care include working together in a climate of mutual respect and shared values with recognition of the influence of culture, power differentials, and hierarchies (Interprofessional Education Collaborative [IPEC], 2011).

Barriers to effective nurse/physician collaboration at the institutional level include the medical profession's tight control over health care provision which contributes to the potent force of power differentials that hinder collaboration (Supper, et al., 2014). Woven into both societal level and individual level, the gendered nature of the physician-nurse dynamic contributes to the social status of the professions and supports intergroup inequalities hampering interprofessional collaboration efforts (Kriendler, et al., 2012).

This study examines the gendered nature of nursing and medicine to develop a critical realist grounded theory of how gendered beliefs of pre-professional students impacts the performance expectations of nurses and physicians. Understanding basic motivational beliefs undergirding the perpetuation of health care hierarchies is important to the development of effective educational strategies that mitigate resultant negative consequences affecting interprofessional collaboration.

Research Question

A mixed-method study was conducted to answer the research question, *What are the intrinsic beliefs, assumptions, and power hierarchies related to gendered perceptions of the professions of nursing and medicine by students of those professions?*

Research Design

Method of Inquiry

Critical realist grounded theory. This study will seek to develop a critical realist grounded theory. Critical qualitative research seeks to clarify the root cause of a phenomenon and the relationship between that root cause and the broader social underpinnings shaping and maintaining the phenomenon (Bhavnani, Chua, & Collins, 2014). The critical researcher seeks to achieve an emancipatory goal by linking a phenomenon to the underlying generative mechanisms. “The very essence of critical theory is to respond and adapt to perceived power relations and resulting subjugations and oppressions of individuals and groups” (Hesse-Biber, 2014, pp. 54-55).

Grounded theories are useful in health care because of their utility in explaining human behavior within social contexts. Wuest (2011) describes the philosophical underpinnings of grounded theory as symbolic interactionism and pragmatism. Symbolic interactionism assumes

that people act and react to people and things based on their own meanings they have ascribed to those people and things. Meanings are modulated and change through interpretive processes during social interactions. Pragmatism is rooted in practicality. This perspective demands that usefulness is paramount and the usefulness of theory is in the value of its change-producing promise. The data in a grounded theory study is evaluated with an eye toward pragmatism (Wuest, 2011) and critical realist grounded theory approaches the data analysis with an eye toward emancipatory goals, rather than merely descriptive goals (Oliver, 2014).

Grounded theory as a method of inquiry has been used for over 40 years. It was developed by two researchers in the field of sociology, Barney Glaser and Anselm Strauss, who were searching for methods better suited for investigations involving people (Creswell, 2013). The method has evolved over time and according to Wuest (2011), changing social contexts have contributed to the development of new approaches. Critical realist grounded theory incorporates the idea of a constructivist approach. Charmaze (2006) describes the use of an interpretive lens during data collection and analysis. An emphasis on values and beliefs, assumptions and ideologies, as well as the goals of bringing into focus hidden power hierarchies and communication undercurrents are a departure from traditional grounded theory processes. What does not change is the gathering of rich data, coding, memoing, and sampling procedures. "The goal of critical realist grounded theory is explanatory theory tracing the line of a tendency from its deepest known generative mechanism to its realized effect in an open social system" (Oliver, 2014, p. 383).

Critical theory embraces the idea that there are multiple ways of knowing and critical realist informed studies frequently use mixed-methods approaches (Oliver, 2014). Qualitative data is used to deeply dive into a subject, while empirical investigation seeks to find patterns or

regularities using statistical analysis (Oliver, 2014). Grounded theory's central idea is 'all is data' and grounded theory studies can and do mix quantitative and qualitative data (Fernandez et al., 2007; Glaser, 1999; Oliver, 2014).

Data gathering. Data was collected from three focus groups and an online survey.

Focus groups. Three focus groups were conducted. Two groups consisted of five and eight nursing students respectively. One group consisted of six medical students. There were a total of 19 student participants. The nursing students were recruited from a small, Midwestern, not-for-profit liberal arts college, and the medical students were recruited from a satellite program of a large, Midwestern public university. The students of both institutions participate in joint interprofessional education activities each semester. Recruitment efforts included posters placed in student common spaces advertising the study as well as e-mails to all students enrolled in the respective programs.

The focus groups used semi-structured interview questions crafted to elicit student thoughts and opinions on their gendered beliefs related to the nursing and medical professions. While there is no existing tool to measure gendered beliefs related to the nursing and medical professions, there is a recently constructed reliable gender essentialism scale that informed the question construction (Skewes, Fine, & Haslam, 2018). To be termed an essential belief, differences between genders are viewed as discreet, as in not having much overlap, biologically based or 'natural', not alterable, inherent, and stable over time (Skews, Fine, & Haslam, 2018). Table 3.1 lists the semi-structured interview questions used during the focus group sessions.

Table 3.1
Gender Essentialism in Nursing and Medicine Focus Interview Questions

Question
1. What is your role on the interprofessional team?
2. a. Medical students: What is the nurse's role on the interprofessional team?
b. Nursing students: What is the role of the physician on the interprofessional team?
3. Historically, medicine has been thought of as a masculine profession and nursing as a feminine profession. How do you think this affects how medicine and nursing work together?
4. What do you think about the statement, "More women than men choose nursing because they are innately more nurturing than men"?
5. What specialties in nursing do you think male nurses excel in?
6. What specialties in medicine do you think female physicians excel in?
7. What reasonable assumptions can you make about a person once you learn they are a medical student?
8. What reasonable assumptions can you make about a person once you learn they are a nursing student?
9. How do you think opportunities for women in nursing differ from opportunities for men in nursing?
10. How do you think opportunities for women in medicine differ from opportunities for men in medicine?
11. What personality differences do you think exist among people who choose medicine as a career and people who choose nursing as a career?
12. In what way do you think physician's thought processes differ from nurse's thought processes?
13. a. How do you think society will view the professions of nursing in 100 years?
b. How do you think society will view the profession of medicine in 100 years?

Each session was audiotaped and the sessions transcribed verbatim. Interviews were held in small classrooms with chairs arranged in a circle and every effort was made to ensure student comfort. The group session was 1 – 1 ½ hours in duration and the students received a $10 gift card as partial compensation for their time.

Online survey. An online survey consisting of four demographic questions and the Interpersonal Hierarchy Expectation (IHE) Scale was emailed to all students in the nursing

program at a small, liberal arts college and all students in the medical program at a satellite program of a university. The IHE Scale was developed to measure the degree to which an individual expects social interactions and relationships to be structured in a hierarchy (Mast, 2005a). The IHE scale is a valid and reliable tool used in research on social perception and interpersonal interaction (Mast, 2005a). Marianne Schmid Mast, the author of the IHE scale gave permission for the scale to be used in this research (Appendix B). Table 3.2 lists the questions that were included in the survey. The survey can also be found in Appendix C. Students who supplied an email address were emailed a $5 gift card to partially compensate for their time.

Table 3.2
Interpersonal Hierarchy Expectation Scale (IHE) Survey Questions

Demographic Questions
Gender
Female
Male
Ethnicity
White or Caucasian
Asian or Asian American
Hispanic or Latino
Year in Program of Study
1st year
2nd year
3rd year
4th year
Highest Level of Education
2 years of college
3 years of college
4 years of college
Baccalaureate degree
Some graduate school
Doctoral degree
IHE Scale Questions *
1. If people work together on a task, one person is always taking over the lead.
2. Every group needs to have someone with extra power or authority to be sure things get done properly.
3. It's probably a good thing that certain people are at the top and other people are at the bottom.
4. Usually, people are very happy when someone takes charge and lets them know how things should be done.
5. In general, it is necessary that certain people subordinate themselves to a leader.
6. To get ahead in life, it is sometimes necessary to step on others.
7. I feel more comfortable if I know the hierarchical structure of a group of people I am introduced to.
8. It is best if some people only contribute their ideas so that others can make decisions.

* IHE Scale (Mast, 2005a)

The focus group dialogue was transcribed, then coded using qualitative analysis software, QDA Miner Lite version 2.0.6 to facilitate analysis. Grounded theory methods employ three phases of coding; open coding categorizes data, axial coding interconnects the data, and selective coding describes the data interaction (Creswell, 2013) A conditional-consequential matrix was used as an analytic device to help track the interplay of the coded data and the underlying structural and social conditions. A review of the analysis by two Ph. D. prepared neutral researchers who are expert in qualitative data analysis was conducted.

Quantitative data was analyzed using inferential and descriptive statistics. Data collected from the survey was imported into Statistical Package for the Social Sciences (SPSS) Version 26 statistics software to facilitate analysis. An analysis of variance (ANOVA) was conducted to examine scores related to gender and discipline.

Social dominance theory guided the process of making meaning of the data. The technique of retroduction, involving reflexivity about the emancipatory positioning of the study, and recurring iterative movement between the evidence and theory was employed. Retroduction was used to develop an explanatory theory tracing the development of hierarchical power structures among nurses and physicians.

Protection of Human Subjects

Human subjects involvement. The subject population of the focus groups and the survey consisted of adult men and women currently enrolled in pre-professional training in nursing or in medicine. A convenience sample was solicited through email, fliers, and personal contact. Potential participants were provided with a description of the research and were assured of the confidentiality of their responses, their rights as participants, and the ability to withdraw from the study at will. Institutional Review Board (IRB) approval was received from the University of Hawai'i at Mānoa as well as from Saint Mary-of-the-Woods College. Indiana University accepted the University of Hawai'i at Mānoa IRB approval as sufficient for their institution.

Sources of materials. Data collected from individuals were in the form of audio recordings, written transcripts, and data collected from the online survey. The data was de-identified and accessible only to the researcher. All data is kept in a locked cabinet in a locked office under the control of the researcher.

Potential risks. Overall, potential risks associated with participation in the study are unlikely and of low risk. The online survey had the option of being anonymous, and the data collected from the focus groups was de-identified when transcribed to protect participants' privacy.

Physical. There was little likelihood of any physical risk as a result of participation in this research project. Interview subjects were not asked to perform tasks as a part of the interview schedule that could result in physical harm.

Psychological. Participants were asked to provide information about their self-reported interprofessional relationships, views on their professional identity, and demographic data (age, gender). The questions were conversational in nature with the risk of psychological discomfort consistent with that experienced in normal conversation.

Adequacy of protection against risks.

Minimizing physical, psychological, and social risks. Participants were free to refuse to respond to any question that may result in psychological disturbance. Nursing focus groups were conducted by a neutral research assistant who was not educationally involved with any nursing students. Individual responses were not linked to personally identifying information. These precautions are expected to be effective in minimizing risks associated with participation.

Minimizing risks to confidentiality. References to names or other identifying information were eliminated from the written transcript of the interview in preparation for analysis of qualitative data. Names and any other identifying information on field notes and document reviews were eliminated in preparation for analysis of these records. These precautions are expected to minimize risks to confidentiality.

Strengths and Limitations

One major strength of focus group study is that it is safer for participants than phenomenology or case study (Oliver, 2012). Oliver (2012) explains, "While the final theory is rooted in participants' experiences, it is constructed by the researcher and contains the researcher's words and thoughts, not those of participants" (p. 384). Revealing description and individual focus are less likely, thus, participant's privacy is protected. Grounded theory studies with a critical realist approach often focus on the search for causal mechanisms of social processes (Lo, 2014) which lends itself well to investigating causal mechanisms of barriers to interprofessional collaborative practice.

A limitation of this type of study is the narrow treatment of such a broad topic. Additionally, the researcher constructs the meaning of the data from an emancipatory standpoint using critical theory by linking phenomena to the underlying generative mechanisms. The researcher's bias in conceptualization of what underlying generative mechanisms are can affect the construction of meaning.

Summary

This chapter discussed the methodology used in this study, including the research design, the population studied, the procedures followed, and the instruments used. Grounded theory methods employing a critical realist approach guided the study. Focus groups were employed to capture data related to medical and nursing students' beliefs of nursing and medicine as gendered professions and a survey was conducted to capture medical and nursing students' expectation of hierarchy organization in social interactions and relationships. The results of the study are reported in Chapter 4.

CHAPTER 4

RESULTS

The results of the analysis of focus-group data collected from nursing and medical students, the results of the online survey collected from nursing and medical students, are presented in this chapter. A mixed methods approach was used to answer the research question: *What are the intrinsic beliefs, assumptions, and power hierarchies related to gendered perceptions of the professions of nursing and medicine by students of those professions.* An understanding of the implicit, gender-informed beliefs of nursing and medical students will assist health care educators with the goal of understanding the development and reinforcement of power dynamics thought to be a barrier to interprofessional collaboration when these pre-professionals enter practice.

The chapter is organized by first presenting the researcher's impetus for pursuing these topics and secondly, a description of the participants. The third section includes a description of how critical realist grounded theory (Oliver, 2014) and constructivist grounded theory (Charmaz, 2006) guided the analysis of the qualitative data. The fourth section presents the results of the focus group data analysis as well as the online survey quantitative data analysis of the Interpersonal Hierarchy Expectation Scale (IHE) scale. SPSS statistics software, Version 26 was used for the analysis. A fifth section presents the proposed theory constructed from the data.

Researcher's Standpoint

In keeping with the qualitative research tradition of reflexivity regarding the biases, values, and experiences the researcher possesses at the outset of the study (Creswell, 2013), this researcher's standpoint is disclosed. Patterns of interpersonal interaction, including authoritarian

dominance not conducive to collaborative practice, are consistent with this author's experiences in the emergency department and the intensive care unit in the role as a staff nurse. As a new nurse, this researcher was overwhelmed by a sense of powerlessness and inadequacy that was eclipsed only by personal experiences as a victim of domestic violence her early twenties. There were striking similarities between the two experiences, most notably the cultural acceptance of abusive behavior based on societal acceptance of patriarchy. Prior to becoming a nurse, this author had a long and successful career as a social worker, including work in domestic violence, and was astounded at the patriarchal power structure of the hospital culture in which she found herself. While the official stance was a zero-tolerance towards verbal assaults, incivility was an accepted, cultural norm and was an everyday occurrence that went on largely without consequence among doctors, nurses, paramedics, respiratory therapists, laboratory technicians, and support staff.

The culture of incivility persists, well after this author's tenure as a novice nurse, although it is less shocking now as acclimation occurred to both witnessing and being on the receiving end of this unprofessional behavior. Knowing that disempowering behavior cannot be stopped within a culture of acceptance, the idea that one way to change power dynamics among health care professionals would be to address it early, across pre-professional disciplines, through interprofessional education. Through investigation, it became apparent that there were indeed many parallels to this author's experiences as a marginalized woman in a patriarchal society and experiences as a marginalized health professional in the hospital hierarchy. A number of researchers were mentioning the problem and supported the idea that, if interprofessional education curricula across the health care disciplines incorporating the

outcomes agreed upon in the IPEC (2011) report is to become a reality, researchers must understand what maintains the existing power hierarchies.

Chinn and Kramer's (2008) discussion of emancipatory knowing and problem solving influenced the choice of methodology for this inquiry. Chinn and Kramer (2008) encourage pursuing a critical or emancipatory approach when encountering societal inequities affecting nursing. This author's personal feminist viewpoints and coursework in feminist research have also informed and influenced this research.

Participants in the Study

Qualitative data was gathered following Institutional Review Board (IRB) approval. Three focus groups comprised of nursing students from a college and medical students from a university were convened. There were two groups of nursing students, six in one group and eight in another group. All of the focus group nursing students were completing their first year of nursing school and all were women. There was one group of six medical students, five of whom were completing their first year of medical school and one who was completing his second year of medical school. Three of the medical students were men and three were women. While the plan was to have two focus groups of medical students, only six students were successfully recruited.

Each focus group was held in classrooms familiar to the students. The nursing focus groups were comprised of students currently enrolled in a class that the researcher was instructing, therefore, a research assistant familiar with conducting focus groups and familiar with the purpose of the study was employed to run the group. The identities of the participants were not known to the researcher to prevent students from feeling pressured to participate. The medical student focus group was conducted by the primary researcher and the research assistant.

All focus groups participants received a verbal explanation of the consent form before beginning the session as well as a $10 gift card incentive. The focus groups were approximately one hour in duration and discussion was guided by the focused questions list (Appendix D). Students were given the option of leaving their email address on a list if they desired to see a copy of the completed research report.

An online survey of nursing students and medical students was also conducted to measure student beliefs about hierarchy. The online survey was anonymous with an optional field for the student to put in an email address if they wanted the gift card incentive emailed to them. A total of 89 surveys designed to measure interpersonal hierarchy expectations were emailed nursing students at a small, Midwestern liberal arts college on May 6, 2019. (Appendix E.) Of these surveys, 41 were returned for a 46% return rate. On May 14, 2019, a total of 90 surveys were emailed to medical students at a large Midwestern university satellite campus. Of these surveys, 33 were returned for 37% return rate although one survey was missing answers to all survey questions and was omitted. Demographics of survey respondents are listed in Table 4.1.

Table 4.1
Demographic Results of Online Survey

Characteristic	Nursing Students *n* = 41	Medical Students *n* =32
Gender		
Female – 71.2% (*n* = 52)	38	15
Male – 29.8 (*n* = 21)	3	17
Ethnicity		
White or Caucasian – 93% (*n*= 67)	39	28
Asian or Asian American	1	3
Hispanic or Latino	1	0
Year in Program of Study		
1st year	0	16
2nd year	10	0
3rd year	15	8
4th year	16	8
Highest Level of Education		
2 years of college	8	0
3 years of college	18	0
4 years of college	7	5
Baccalaureate degree	8	13
Some graduate school	0	13
Doctoral degree	0	1

Protection of Participants

Participant consent forms were emailed to the student prior to the focus groups and read aloud to focus group participants before the beginning of the focus group sessions and and an opportunity to questions before signing was provided (Appendix F). Participants were free to respond or refuse to respond to any question and were free to leave at any time. Participants were assured that the data would be de-identified before data analysis and all data would be kept in a locked drawer in a locked office accessible only to research staff.

Participants in the online survey were emailed the consent form and the link to the survey. Progressing to the survey indicated consent to participate. Participants had the option of adding their email address if they wanted to receive the $5 gift card incentive or wanted to receive a copy of the final research report.

Data Analysis: Methodology

Structured interview questions were designed to elicit students' intrinsic, or essentialist gendered views, on medicine and nursing (Appendix D). Gendered essentialist beliefs include: differences are discrete as in not having much overlap; differences are biologically based or characterized as natural; differences are not alterable; differences are inherent; differences remain the same over time; and differences are inductively potent or provide valuable insight about a person (Skewes, Fine, & Haslam, 2018). Data were open coded to group ideas into concepts. The words students used to describe the functions of each of the professions were grouped together. The open codes were then interconnected using the framework of the existing categories of gendered essentialist beliefs and sorted using a conditional/consequential matrix (Table 4.2). Using this type of framework is consistent with critical realist grounded theory development where the use of an interpretive lens during both the data collection and the analysis works toward achieving the goal of uncovering hidden power hierarchies and communication undercurrents (Oliver, 2014).

Statistical analyses were conducted on the online survey data to reveal any patterns or regularities about students' existing beliefs about group hierarchies. Using a constructivist approach to all of the data collected, and recurring iterative movement between data and theory, an explanatory theory of how gendered essentialist beliefs of students impacts hierarchical power structure development in pre-professional medical and nursing students was then developed.

Conditional/Consequential matrices helped illustrate the underlying social constructs (Tables 4.2 and 4.3.) The Realist Grounded Theory model, developed by Chi-Shen Owen Lo (2014) was used during the theory development.

Table 4.2
Student Beliefs about the Medical Profession Conditional/Consequential Matrix

Consequence				
Medicine is viewed as an important, prestigious occupation.	Physicians are expected to adopt the traditionally 'natural' male role of work being primary and family being secondary.	Female physicians are more likely to be pediatricians and family practitioners than their male counterparts.	Students feel that medicine will always be a high-status position. The presence of so many women in medicine is eroding the idea that men dominate the field.	Student nurses felt intimidated by medical students and felt that this created a communication barrier.
Student Beliefs about Medicine				
Physicians role (discreet characteristics) • Diagnosis • Final decision maker • Team director • Information resource • Leader • Manager • Primary responsibility for patient • Focus on the disease process	Physician's roles are natural. • Physicians need to be able to take charge and make decisions. • Physicians need to be leaders. • If females want to be physicians, they have to sacrifice their family life.	Female physicians excel in medical roles requiring female characteristics • Females are best suited for medical roles involving caring, patience, and comfort such as pediatrics, geriatrics, and family medicine. • Females are better suited to care for patients with female reproductive problems and males are better suited for male reproductive problems	Physician roles remain constant • Physicians have historically been responsible for patient management. • Physicians have always been expected to be leaders. • Physicians are held in high regard.	Simply knowing a person is a physician tells much about them • Have the ability to lead • Privileged • Hard-working • Inquisitive • Responsible • Smart • Dedicated • Arrogant
Condition (Essential gender beliefs)				
Men and women have very different characteristics. • Women are caring, comforting, sensitive, patient, and protective. • Men are leaders, managers, and are decisive. • Women's roles are less valued than men's roles	Gender roles are biologically based. • Because women bear children, they are naturally more nurturing, patient, and emotional. • Because men are the family protectors, they are naturally more aggressive and decisive, qualities needed to lead	Gender roles are not alterable. • Emotional differences make men and women more suitable for some professions.	Gender roles are historically invariant: • Men have always had more power than women. • Men traditionally hold positions of leadership. • Women have always been caretakers.	Knowing a person's gender is inductively potent. • Knowing someone is female tells you they are more likely to have the qualities needed to care for others. • Knowing someone is male tells you they are more likely to have the assertiveness to take charge and lead others.

Table 4.3

Student Beliefs about the Nursing Profession Conditional/Consequential Matrix

Consequence				
Because men have more status and power in society and nursing is thought of as feminine, nursing is seen as an inferior status occupation compared to the masculine profession of medicine.	Women are expected to choose nursing or other 'caring' profession. Men are less likely to choose nursing because of the associated feminine roles. Nursing is seen as a 'calling' or vocation rather than an occupation.	Male nurses are expected to want to pursue aspects of nursing requiring the ability to handle high stress, technical aspects of nursing, and roles requiring physical strength.	Nursing is not understood as a distinct profession with unique expertise by society but rather remains thought of as physician support staff. Medicine feels threatened by changing nursing roles.	Nurses are expected to be dedicated, selfless individuals who care for others regardless of working conditions. If nurses had the leadership capacity, they would choose to be physicians.
Student Beliefs about Nursing				
Nursing role (discreet characteristics) • Caring • Comfort • Support • Ensure patient safety • Patient advocacy • Communication of patient needs • Collaboration with interprofessional team • Holistic viewpoint	Nurses roles are natural. • Nurses have nurturing characteristics • Nurses need patience • Nurse role suitable for emotional women	Male nurses excel in nursing roles requiring male characteristics (not alterable) • Male nurses excel in high-stress nursing roles e.g. emergency nursing, surgical nursing, and cardiac nursing • Male nurses excel in nursing roles requiring physical strength e.g. psychiatric nursing, orthopedic nursing	Nursing roles remain constant (historically invariant) • Nurses have always been and still are perceived as physician helpers. • While nursing has become more complex, the roles of caring, comforting, and implementing physician orders remain constant	Simply knowing a person is a nurse tells much about them • Nurses are patient • Dedicated • Hard-working • Smart • Do not want very much responsibility • Able to handle abuse (from both patients and physicians)
Condition (Essential gender beliefs)				
Men and women have very different characteristics. • Women are caring, comforting, sensitive, patient, and protective. • Men are leaders, managers, • Women's roles are less valued than men's roles	Gender roles are biologically based. • Because women bear children, they are naturally more nurturing, patient, and emotional.	Gender roles are not alterable. • Men are better suited for physical work than women. • Emotional differences make men and women more suitable for some professions.	Gender roles are historically invariant: • Men have always had more power than women. • Men traditionally hold positions of leadership. • Women have always been caretakers.	Knowing a person's gender is inductively potent. • Knowing someone is female tells you they are more likely to have the qualities needed to care for others. • Knowing someone is male tells you they are more likely to have the assertiveness to take charge and lead others.

Focus Group Data

Shared Perceptions of Nursing and Medical Students

Discreet characteristics of medicine and nursing. Both nursing students and medical students used words to describe nursing and medicine that were highly gendered. The words used to describe nurses included caring, comforting, and nurturing and these words are commonly used to describe womanly or feminine characteristics (Parker, Horowitz, & Stepler, 2017; Scott, Keitel, Becirspahic, Yao, & Seren, 2018). Words used to describe physicians were leaders, managers, and decision-makers which score very highly as masculine on The Glascow Norms, a tool that lists word attributes (Scott, et al., 2018).

The concept of caring related to nursing occurred frequently (n = 24) during the focus groups and one time in reference to medicine. Nursing students described their role as giving care to the whole person, including spiritual care and care of the entire family. One nursing student stated, *"You have to have a caring heart to want to be a nurse."* One female medical student expressed admiration for the caring role of nurses and characterized nurses as self-sacrificing:

> *I don't know how to explain this, but there's this feeling that I have that just because nursing is so difficult at times, they do care for the patient for their entire shift, and they have to clean up after them and deal with all those smells and all of this belligerence and it's often times a thankless job. And so when I think of someone who is the nurse, I admire them for choosing to go into the profession. Like, I compare them to myself and I know that I'm working hard at this, but there is more of an admiration for*

them going through nursing school and going through that hard work to be pulled through the mud at times and in the future.

Providing comfort for the patient was also seen as a nursing basic. A medical student said, *"the nurse is far more involved in like the physical activities going on with that patient from the small things. Like whether or not,* [pause] *like I can't say that it is even small, like whether the patient is warm enough, or are they comfortable."* Nursing students agreed, *"we're going to be like helping them with their comfort level and like just getting them comfortable with being in the hospital"*.

Physicians were primarily described in the masculine terms of leadership and decision-making. A nursing student said, "*I think he is like the head of the team most of the time. I mean that's what he's seen as, like the point basically, or her, because there are female doctors too."* Nursing students seemed to agree that physicians leading the health care team was natural,

They need to be the alpha of the group because we can't have a bunch of people running on a team and everyone's trying to yap and say their piece. You need to have one person in those like stressful events that can make those decisions when it gets down to it. I think there needs to be a little bit of masculinity in the role. Like I don't think it's bad.

Medical students agreed that leadership was an important part of their role.

And I think the key word that they, like, med schools and premed committees always stress is how important is to be like a good leader. Which I think is a big deal because like [other male medical student] *said that it's something like you have to manage everyone else. In a way, you*

> *might not be super knowledgeable in all the areas, but just being able to know that where, what to do, and what's the right course of action.*

Biologically based differences. Nursing and medical students made a case for people being best suited for health care specialties based on biological differences. Both nursing students and medical students felt that women were more suited for obstetrics and gynecology because females prefer to see other females for those health problems. A male medical student shared his views on why female physicians might excel as a pediatrician:

> *I'm with a female family practice doctor right now and just seeing the way she interacts especially with children and things the ability to sound sweet and have a soft voice and have a very welcoming personality. Also, I don't know if this makes any difference but as I think about it she is smaller in stature and just overall just a more welcoming persona. No, I can't say* ***more*** *welcoming. I'm not comparing her with anyone, but like in my mind when I think about that I, okay I can see why children would be receptive to this whereas men, biologically, will more likely than not have facial hair. Well, not more likely than not but, more likely than females to have facial hair, be taller, be bigger, have a deeper voice. They may just come across as like more intimidating perhaps, and less welcoming, so I can see where the biological basis is for where a female might be more effective as a pediatrician.*

The physical strength of a male was discussed by both nursing and medical students as reasons that male nurses would be well suited for working in psychiatric care. A female nursing student shared, "*I also think that if you are in a situation like in a psych unit and your patient is*

very combative. Sometimes women can't handle it very well so the men are a little bit stronger and they can handle combative patients better than we can."

Students also felt male nurses were best suited for emergency nursing and surgery. A female medical student offered, "*I would think there would be more like just thinking about it, if I would have to put a male nurse in something, I would say there would be associated with surgery. That's the one thing I'd think more like than maybe family medicine."* Another female medical student agreed, "*I just feel like they want more of hands-on, oh, that's what I feel like".* A male medical student responded, "*ironically, the non-nurturing nursing positions (laughs)."* The group laughed and several voices were heard agreeing.

When asked if more women than men choose nursing because women are more nurturing, one nursing student focus group agreed with the medical students that this was true. A female medical student stated,

> *I think that our biological capability of carrying a child in our wombs is something that would certainly support that stereotype because there is always truth behind stereotypes. Being motherly is something that only women can do, it's something that women go into nursing and have that whole association. So, I can understand that statement based on that.*

As part of their leadership role, physicians were seen as experts. Nursing students felt physicians were a valuable source of information, "*because they have more information about the bigger problem.*" A female medical student said,

> *I think there is also a teaching aspect. Like, because as a physician, like most people will look to you for the final decision, because, typically, in most situations physicians have the final say so I think it is also important*

to be accountable for your decisions. So, explain what you are doing so other people are understanding, so that, hey, if someone doesn't agree with what you are doing, you are at least explaining your thought process, they're explaining their's, or if they don't understand, teach them, so that next time things run smoothly, more efficiently, things like that.

Historically invariant. When asked how medicine historically being thought of as a masculine profession and nursing as a feminine profession might affect team dynamics, a nursing student said this about leadership in medicine.

I'm not necessarily saying that it's just masculine, I'm saying that's like a face to it. I think that's why people associate doctors with being masculine is because they are the leader. So they think that historically, like the question said, men were all the decision-makers of the household back in the day so that's why they should be in those leadership roles. But I do think it is an alpha male type of thing to be a leader so it's kind of like the more masculine role. It doesn't mean you have to be a man, but it does mean you have those tendencies.

Highly informative. Knowing someone's status as a nurse or a physician was seen as information that provided insight into a person's other characteristics by both nursing and medical students. With the caveat that there were always exceptions, nursing students felt like both medical students and nursing students were smart, hard-working, and dedicated people. Medical students felt like nursing students were also hard-working, smart, and dedicated, however, they also thought nursing students did not want a high level of responsibility and were people who could take abuse from patients and physicians:

Resilient. Also, I can't think of a word for this, it goes along with what you're saying but willing to make a sacrifice themselves or put themselves in a position of vulnerability often, I feel like verbal abuse. Like my mom is a nurse and I like hear it all the time like how everyone else always tramples on them but it's like when it's go time and things are intense the nurse will get the brunt of it. Especially from physicians. But willing to be able to deal with that so the patient can get the best care that they can get. Not the word for that, but someone who is willing to do that. Because I know when I think about medical students I don't think about someone who is willing to you know, take that from somebody else and continue doing their job. That is a quality that is important.

Medical students felt like they could assume that other medical students would be intelligent, be hard-working and responsible, have the ability to lead, and be naturally inquisitive.

I think of physicians of being a little more like inquisitive. They want to know why something is happening, how it is happening like to prevent it from happening whereas I think of like a nurse might be a little more task-oriented, goal-oriented, getting things done that you need to get done, but not so much as so concerned about all the hows and whys.

Both nursing and medical students also stated that they could assume that a medical student came from a privileged background. Medical students shared their experiences with the admission process and talked about the amount of money it took to even go through the application process. All of the medical students agreed that they came from privileged backgrounds. Three of the six medical students had parents who were physicians, one had a

parent who was a lawyer, one had a parent who was a veterinarian, the other did not share that information. None of the nursing students described themselves as having a privileged background.

Diverging Perceptions of Nursing and Medicine

Discreet difference. Nursing students see themselves as responsible for a patient's safety and take on a protective role. They described themselves as advocates for the patient in the system and as being the last line of defense for patient safety. Medical students did not mention this. Nurses also felt that physicians were arrogant and felt that because of the gendered nature of nursing they are not given voice or respect by physicians.

Nursing Student: I feel like nurses are seen as inferior compared to the physicians.

Another Student: I feel that it can also place a divide between, so interfere with collaboration

Interviewer: So you think it can make a barrier? Can create a barrier? What kind of barrier?

Student: I'd say maybe like between collaboration or communication. Sometimes the nurse doesn't feel comfortable talking to the provider about their thoughts.

Interviewer: Why do you think that might be?

Student: Because providers sometimes do look at themselves as better than the nurse.

The nursing students continued their discussion on the gendered nature of medicine and nursing:

Student: Like when they think about medicine, the general public think of doctors being men and females being nurses and they see nurses as like handmaids to the doctors.

Interviewer: As handmaids to the doctors? Okay. So historically you would say that is how it has affected nursing. Do you think that because that has been the history that it is still happening today?

Students: Yes [multiple voices]

Interviewer: Is everyone in agreement that it is still happening today?

Students: Yes[multiple voices]

Student: And some patients get very hesitant about if a female doctor comes into a room they are not as likely to tell them all their problems as if a male doctor comes into the room because they feel like they are not as intelligent.

Nursing was seen as having the role of physician support by medical students. A female medical student stated, "*when I think of nurses in my past experience, the word support comes to mind. They are the major elements of the support staff. Any doctor needs up to like two or three nurses to carry out what they need to get done in the office or in the hospital so that people can keep moving."* While nursing students recognized that they implement physician orders, they used the word '*collaborate'* when discussing their role with physicians.

Fixed or unalterable. Medical students think of women when they think of nurses and do not necessarily think of physicians as men. A male medical student stated:

*I definitely think of nursing as a feminine position when I, when I think about it, not thinking about who can do it but who **is** doing it, I definitely think of females. In fact, one of my cousins is a nurse and I was so confused when he said that because, I was, I wasn't sure what to make of it. I mean it was just for a split second, but I have nothing against him for*

doing that, but in my mind, subconsciously I was like that is kind of surprising to me.

Another student added:

I did meet a physician one time who said that he would never hire a male nurse because he just feels like that dynamic would be weird. He doesn't want to tell a male nurse what to do. So I think that that is beyond medicine.

Another student appeared quite intrigued by the conversation:

And of course beyond this there is a greater conversation about male-female dynamics that is in the world, but I thought that was fascinating, oh, because that also made some sense to me. I can understand that, at least for me what I think of nursing I think of females.

A female medical student elaborated:

But then it's still nursing is predominantly female because I think it is also something to do with males not wanting to go into something that's just female. They would be like, oh that's all the girls can do that so I like medicine, but I don't want to be a doctor, but it's okay. I will figure out something else completely different to do instead of like, I don't know how to say this nicely, but instead of like caving and being like OK, I'll go in this female position 'cause I think people might have that idea. Or males, they think their friends or family might be like oh that's a girl job. It's not like, and I feel like with me growing up, like I wanted to do something sciencey for like my whole life and I've never been told that's what the

guys do. That's just male position, so I think it's something to do with that too.

Nursing students recognized that nursing is a feminine dominated field but feel that it is changing. They explained that men may feel uncomfortable in such a feminine role, "*there's like a stigma around men in nursing. Nursing is like they're seen as more feminine or like something like that. That's like a common joke you see in like movies and stuff, but again I think that it is changing."* Nursing students exclusively used the pronoun 'he' when talking about physicians, although they recognized female physicians were more and more common.

Medical students did not primarily think of men when they thought of physicians. Two male students shared that they had that perception when they were younger, but medicine has changed to such a degree that the perception is dwindling. All the medical students asserted that opportunities in medicine were the same for both male and female medical students. That said, one female student shared an experience she had during a cardiology rotation:

I shadowed a male cardiologist and pretty much like from that it has completely solidified in my mind that I always want a female doctor because he said, point blank to me, you need to decide if you want to have a family or if you want to have a career. And that like just really upset me because, like I have always had female doctors, and they all have kids. they seem to like have it under control.

Online Survey Data

Eighty-nine surveys designed to measure interpersonal hierarchy expectations were emailed to nursing students attending a small, Midwestern liberal arts college on May 6, 2019. (Appendix E.) Of these surveys, 41 were returned for a 46% return rate. On May 14, 2019, a

total of 90 surveys were emailed to medical students at a large Midwestern university satellite campus. Of these surveys, 33 were returned for a 36% return rate. One of the surveys had no responses to any of the scale questions and was omitted from the results. There were four instances of data missing. These missing data were handled by mean substitutions.

The survey was comprised of a respondent demographic section, an eight item Likert-like scale, and an optional section to collect email addresses for respondents wishing to receive the $5 e-gift card. The scale was designed by Marianne Schmid Mast (2005a) to measure how prone people were to perceive hierarchies in their interactions and relationships. The Likert scale had a 6-point rating with 1 = *disagree strongly*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *agree strongly*.

Data were analyzed using SPSS statistics software, Version 26. Nursing students comprised 56.2% (n = 41) and medical students 43.8% (n = 32) of the respondents. Of the respondents, 71.2% (n = 52) were female and 29.8% (n =21) were male. Percent of respondents identified as White or Caucasian was 90.4% (n= 66), followed by Asian or Asian American at 6.9% (n = 5) and Hispanic or Latino at 2.7% (n = 2). Of the medical students, 50% (n = 16) were in their first year, none were in their second year, 25% (n = 8) were in their third year, and 25% (n = 8) were in their fourth year of medical school. Of the nursing students, 24.4% (n = 10) were in their first year, 36.6% (n = 15) were in their second year, and 39% (n = 16) were in their third year of nursing school. Highest education level results were: 2 years of college 11% (n = 8), 3 years of college 24.7% (n = 18), 4 years of college 16.4% (n = 12), baccalaureate degree 28.8% (n = 21), some graduate school 17.8% (n = 13), and doctoral degree 1.4% (n = 1). (Table H.1 in Appendix H).

A Kolmogorov-Smirnov (K-S) test of normality was conducted to test for normal distribution of Hierarchy Scale scores. The K-S test indicates normal distribution of Hierarchy Scale scores, $D(73) = 0.09$, $p > .05$. A Levene's test of homogeneity of variance was conducted. Based on Levene's test, the homogeneity of variance assumption is tenable. For the Hierarchy scores, the homogeneity of variances were equal for nursing students and medicine students $F(1,71) = 0.04$. A reliability analysis was carried out on the Hierarchy Scale items. Cronbach's alpha showed acceptable reliability, $\alpha = .74$.

Table 4.4 summarizes the individual items and overall mean scores for both medical and nursing students for the IHE. Both nursing and medical students seemed to be solidly in the middle of the scale, neither expecting social interactions and relationships to be strongly hierarchically structured or without any hierarchy structure at all.

Table 4.4
IHE Scale Survey Results

Scale item	Nursing Students[a]	Medical Students[b]	Overall[c]
1	4.41 ± 1.11	3.84 ± .95	3.99 ± 1.05
2	4.05 ± 1.18	3.31 ± 1.21	3.73 ± 1.24
3	2.98 ± 1.25	3.44 ± 1.34	3.18 ± 1.31
4	3.56 ± 1.23	3.47 ± 1.19	3.52 ± 1.20
5	3.73 ± 1.14	3.22 ± 1.34	3.51 ± 1.25
6	2.02 ± .96	1.70 ± 1.05	1.89 ± 1.01
7	3.54 ± 1.16	4.03 ± 1.34	3.75 ± 1.28
8	2.51 ± 1.31	2.34 ± 1.12	2.44 ± 1.23
Overall mean	3.33 ± .70	3.17 ± .74	3.26 ± .71

Note. Values are *M* ± *SD.* Item descriptions can be found in Appendix C.
[a] $n = 41$. [b] $n = 32$. [c] $n = 73$.

To compare IHE scores of nursing and medical students, an independent-sample t-test was conducted. There was not a significant difference in scores for medical students (M = 3.17, SD = 0.74) and nursing students (M = 3.33, SD = 0.70); $t(71)$=-.966, p=0.34. An independent-samples t-test was conducted to compare IHE scores between men and women students. There was not a significant difference in scores for women (M = 3.28, SD = 0.72) and men (M = 3.23, SD = 0.71); $t(71)$ = -.234, p = 0.23. To examine the effect of year in med school and year in nursing school on IDE scores an ANOVA was conducted on each group. For medical students, their year in medical school did not have a significant effect on IHE scores, $F(2, 29) = 0.68$, p = .52. For nursing students, their year in nursing school did not have a significant effect on IHE scores, $F(2, 38) = 0.535$, p = .590.

Gender Essentialism Theory

The theory emerging from the data analysis is: *Essential beliefs about female and male characteristics, roles, and abilities affect student's perception of the characteristics, roles, and abilities of nurses and physicians.*

Focus Group Data

Intrinsic, or essential belief about social categories can be described as the belief that a category has an 'essence'. To be essentialized, the social category is thought to have social distinctions that are 1) deeply rooted in biological underpinnings; 2) are historically invariant and culturally universal; 3) have distinct boundaries (Haslam, Rothschild, & Ernst, 2000). Gendered essentialist beliefs add the ideas that differences are not alterable and that they are inductively potent, providing valuable information about the person (Skewes, Fine, & Haslam, 2018). Student responses indicated that the social categories of nursing and medicine are gender essentialized. Nursing is feminine, medicine is masculine. Students ascribed expectations of

work performance based on gender. Physicians were expected to be authoritative and in control of medical care. Nurses were expected to be so dedicated and caring that they would work in spite of low respect from physicians and patients. Male nurses were expected to be more successful in 'non-nurturing' nursing roles, and female physicians were expected to be more successful in family-oriented medical roles.

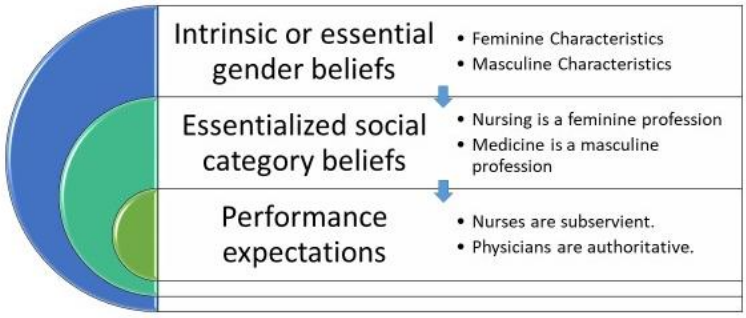

Figure 4.1 Gendered beliefs of nursing and medicine.

Hierarchy Survey Data

The IHE survey was designed to reveal the extent to which individuals expect "that interpersonal interactions and relationships are organized in a hierarchical way, with some people at the top and some people at the bottom of the hierarchy" (Mast, 2005a, p. 291). The results of the survey indicated that nursing students and medical students, regardless of gender or year of study, were fairly neutral. There was neither a strong agreement or strong disagreement with the idea that interpersonal interactions and relationships are organized in a hierarchy.

Theory Validation

Two Ph.D. prepared colleagues validated the analysis of the data. Colleagues were asked to view the coding and subsequent analysis to verify the thoroughness and logic of the report findings. Both colleagues agreed with this researcher's analysis of the findings.

Summary

This study investigated what intrinsic or essential beliefs were held by nursing students related to gender and power hierarchies of professions of nursing and medicine. Using a critical realist grounded theory approach, both qualitative and quantitative data was collected from nursing and medical students then analyzed to generate a theory.

Data analysis was accomplished by open coding transcribed focus group dialogue into concepts using Strauss and Corbin's (2008) process of constant comparison. The open codes were then interconnected using existing categories of essentialist beliefs. These were then sorted using conditional/consequential matrices. Quantitative data collected from the online survey measuring students' expectations of interpersonal hierarchies. These data were then analyzed to find empirical relationships among nursing and medical students and their expectations of hierarchical structure in social interactions and relationships. Expert colleagues reviewed and verified the data analysis.

The data indicated that both nursing and medical students had essentialist gendered beliefs informing their perceptions of the professions of nursing and medicine. Nursing was viewed as a feminine profession and medicine as a masculine profession. Perceptions of the roles and responsibilities of individuals in the professions were highly gendered.

Chapter 4 provided a study introduction and a brief discussion of the researcher's standpoint. Chapter 4 also described the sample, the methodology employed in the analysis of the data, and presented the data results. Chapter 5 will discuss the results, provide conclusions based on those results, discuss previous works and theoretical framework, and interpret the findings. Limitations and implications for practice along with further study recommendations will be presented.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This chapter provides a summary of the results and then discusses the results in more depth. The results are then synthesized with what is known about power and hierarchy and critically examined to explain the results in terms of the impact on interprofessional collaborative practice. The chapter concludes with a brief overview of the study as a whole and the findings.

Summary of the Results

Improving interprofessional collaboration among health care workers to ultimately improve patient outcomes is an international goal spearheaded in the United States by the Interprofessional Education Collaborative's (IPEC) goals have centered around developing competencies for interprofessional collaborative practice and promote interprofessional education efforts to develop competencies in health care students and practitioners (IPEC, 2019). In spite of efforts across the country to provide interprofessional health care education, little progress has been made toward improving collaborative practice (Bell, Michalec, & Arenson, 2014).

A major barrier to effective collaborative practice is the persistent existence of rigid, traditional power hierarchies in health care (Bell, Michalec, & Arenson, 2014; Reeves, van Soeren, MacMillan, & Zwarenstein, 2013). Bell, Michalec, and Arenson (2014) state:

> The development of a medical hierarchy was founded upon gender stereotypes. Men were the patriarchs and leaders of the family, while women were the caretakers, and this arrangement and ideology was replicated in the health care delivery workplace. Doctors

> were the ‘fathers’ of medicine and women were relegated to the more caring positions of nursing and ‘hand maidens’. (p. 101).

Bell, Michalec, and Arenson (2014) further contend that gender stereotype serves to maintain the existing medical hierarchies and is at the root of the “stalled progress of interprofessional collaboration” (p. 98).

Understanding what is underpinning the continued influence of gender stereotypes in nursing and medicine may shed light on avenues health care educators can explore to reduce the negative effects of power dynamics on collaborative practice and improve outcomes of interprofessional collaboration education efforts. This study was designed to find out what intrinsic beliefs, assumptions, and power hierarchies related to gender are held by nursing and medical students. An understanding of the implicit, gender-informed beliefs students bring with them into their pre-professional programs may be a good starting point for dismantling the power hierarchies impeding interprofessional collaborative practice.

To explore students’ intrinsic, or essential beliefs, both qualitative and quantitative data was collected. Two focus groups comprised of nursing students and one group of medical students in their first or second year of a medical school participated in the study. Focus group discussion was guided by a list of questions about nurses and physicians targeting different facets of gender essentialism and was audio recorded. Focus group data were then transcribed and analyzed using a critical realist grounded theory approach. Quantitative data were gathered through an online survey about student views of hierarchy in interpersonal relations. The survey, consisting of demographic questions and the IHE scale (Mast, 2005a), was emailed to all of the nursing students in a small Midwestern college and all the medical students in a medical school satellite program of a large Midwestern university. Of the 179 surveys emailed, 73 surveys were

completed. Data were analyzed using SPSS to compare IHE scale scores between groups of nursing and medical students, to compare scores between men and women, and to examine the effect of year in medical or nursing school on scores.

The focus group data revealed that students held gender essentialized beliefs categorizing nursing as feminine and medicine as a masculine social category. Gendered beliefs affected student's perceptions of the characteristics, roles, and abilities of nurses and physicians. There was no difference among students in IHE scale scores. Both groups scored in the middle of the scale indicating ambivalence to the idea of expecting social interactions and relationships to be hierarchically structured.

Discussion of the Results

People in societies organize themselves into social groups to help make sense of the social world (Sidanius & Prato, 1999). Society is made up of individuals, yet there would be little order in a society of individuals unless they see themselves as belonging to social groups (McGary, Yzerbyt, & Spears, 2002; Sidanius & Prato, 1999). If a person knows where they fit within the larger fabric of society, it anchors them in the fluctuating milieu of the world and provides them with a steady viewpoint from which to make sense of who they are and what to expect of others around them (McGarty, Yzerbyt, & Spears, 2002) .

A stereotype is the perception that group members share characteristics, similar experiences, and shared values and beliefs and people stereotype members of social groups. (McGarty, Yzerbyt, & Spears, 2002). Using stereotypes is a shortcut of sorts, to assist people to quickly size up situations and know what to believe in a complex world (Macrae, Miln, & Bodenhoausen, 1994). Membership in a group gives a person status and standing in society, not based on their individual merit, rather based on simply being a member or being perceived as a

member of a group commanding that level of social status and standing. A problem with stereotypes is that they are any impression held by a group of people about a social group, regardless of the accuracy behind it (McGarty, Yzerbyt, & Spears, 2002).

In nursing, students enter with their pre-formed beliefs, or stereotypes, about the nursing profession, which may or may not be realistic. Some of the first tasks of the program are to begin the deconstruction of some of the stereotypes of nursing they enter with and start educating them on their actual professional role (Bolan & Granger, 2009). The educator must also purposefully reinforce some of the stereotypes that truly *are* thought to be part of a nurse's professional identity (Bolan & Granger, 2009). Developing a social identity and, more specifically, professional identity is an important part of both nursing and medical programs (Thistlewaite, 2015). For example, a recent article in *Nurse Education Today* listed the desirable qualities of a nurse as "compassion, honesty, empathy, accountability, conscientiousness, ethics, as well as communication and teamwork skills" (Pitt, Powis, Levett-Jones, & Hunter, 2014). Few people would claim that those stereotyped characteristics are negative, but it can be argued that individual stereotyped statements and beliefs are related to underlying systems (McGarty, Yzerbyt, & Spears, 2002) and those underlying systems could contribute to negative outcomes.

Social Essentialism

According to Haslam, Rothschild, and Ernst (2000), stereotypes are formed not only through categorizing attributes, but through the understanding of the social meanings of those attributes. For example, the stereotyped beliefs of nurses being compassionate, honest, and empathetic parallel the belief that a woman or mother is all of those things and more. These are essential beliefs about women than influence the ideas people hold about how nurses should

behave and interact with others. Essential beliefs are powerful informants although people are rarely conscious of them:

> Much of social life is experienced through mental processes that are not intended and about which one is fairly oblivious. These processes are automatically triggered by features of the immediate social environment, such as group memberships of other people, the qualities of their behavior, and features of social situations (e.g., norms, one's relative power). (Bargh & Williams, 2006, p. 1)

Essentialism is a belief that things have a set of characteristics, or an essence, which make them what they are and social essentialism is the belief that human social categories also have an essence shaping its place in society (Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2018). People who hold more essentialist beliefs also tend to explain stereotypes in terms of innate or inherent factors (Bastian & Haslam, 2006).

The development of social essentialist beliefs happens early in life. As young as four years old, children hold essentialist beliefs about gender, expecting girls to behave in certain ways, and boys in other ways (Rhodes, et al., 2018). Gender essentialism has several components: 1) gender differences are discreet (can be categorized as masculine or feminine); 2) biologically based and natural; 3) fixed or unalterable (women will always be better suited for feminine occupations); 4) inherent (not learned socially, but naturally a deep part of who we are); and 5) inductively potent (we know a lot about a person when we know their gender) (Haslam, Rothschild, & Ernst, 2000, Skewes, Fine, & Haslam, 2018). Gender essentialist thinking is also thought to serve to justify social inequalities and maintain the existing status-quo, impeding social change (Skewes, Fine, & Haslam, 2018; Jost & Banaji, 1994).

Feminine vs. Masculine. Gender stereotypes are generalizations about men and women's attributes and have been extensively studied and are remarkably consistent across culture (Abele, 2003; Heilman, 2012). According to Heilman (2002), the defining characteristic of the female stereotype is communality and for males it is agency:

> Agency has come to denote achievement-orientation (e.g. competent, ambitious, task-focused), inclination to take charge (assertive, dominant, forceful), autonomy (e.g. independent, self-reliant, decisive) and rationality (e.g. analytical, logical, objective). Communality, on the other hand, has come to denote concern for others (e.g., kind, caring, considerate), affiliative tendencies (e.g., warm, friendly, collaborative), deference (e.g., obedient, respectful, self-effacing) and emotional sensitivity (e.g., perceptive, intuitive, understanding). Conceptions of men and women not only are different, but they tend to be oppositional, with women seen as lacking what is thought to be most prevalent in men, and men seen as lacking what is most prevalent in women. (p. 115)

Focus groups revealed that students assign communal attributes to nurses and agentic attributes to physicians consistent with gender stereotyping. Nurses were attributed the communal characteristics of caring, patience, and kindness; physicians were attributed the agentic characteristics of leading, managing, and autonomy.

Biologically based or natural. Students felt that nurses were more likely to be women because of the attributes of nurturing, patience, and being emotional spring from bearing children. Nursing students felt that because men have traditionally been family protectors, that it is in their nature to be more aggressive and decisive, qualities physicians need to possess for leadership.

Fixed or unalterable. When discussing physician roles, both male and female students felt that females excelled in medical roles requiring communal characteristics such as pediatrics, geriatrics, and family medicine. When discussing nursing roles, both male and female students felt that males excelled in nursing roles that required the agentic characteristics such as emergency, surgical, and cardiac nursing as well as nursing roles requiring physical strength such as psychiatric and orthopedic nursing.

Inherent. Students felt that while nursing roles have become more complex, the basic roles of caring for people and carrying out physician's directives remain constant. Physicians have traditionally been in a patriarchal position of governing health care (Starr, 1982) and students felt that this would remain the case for years to come. Some concern was voiced by medical students that nurse practitioners may become a threat to their jobs in the distant future.

Inductively potent. Students felt that simply knowing that a person was a nursing student or a medical student told much about them. They felt that people who would choose nursing would have communal characteristics and people who would choose medicine would have agentic characteristics.

Interpersonal Hierarchy Expectations Scale

Mast (2005a) defines interpersonal hierarchy expectation as "expecting dominance hierarchies to be present or to form in interpersonal interactions or relationships" (p. 287). In Mast's (2005a) original work, men scored somewhat higher on the IHE scale. Mast (2005b) also found a correlation between high IHE and stereotyping behavior. However, the IHE results in this study showed no significant difference between the scores of men and women. Both groups scored in the middle of the six-point Likert-like scale. Additionally, there were no differences in nursing and medical students' scores, nor did the student's year in their program have a

significant effect. These results suggest that each of the groups had similar expectations of hierarchy in interpersonal interactions.

These findings are consistent with the qualitative results. In the focus groups, men and women, nursing and medical students, were all largely in agreement on how they perceived the professions of nursing and medicine. There were no group differences in the belief that medicine had more social status and power than nursing.

Conclusions Based on the Results

Critical realist social theory explains society as a matrix of structured, enduring relations and within the construct, there are two primary actors; individual people and the social structures in which people locate themselves (Porter, 2016). The critical task involves examination of underlying reasons for the matrix structure to provide a basis for emancipatory action (Porter, 2016). Social dominance theory (SDT) is a tool that can help accomplish this goal. Social dominance theory explains the tendency of people to organize into group-based social hierarchies, with some groups having more power and social status than other groups (Sildanius & Pratto, 1999). In health care, medicine has more power and social standing than nursing has, resulting in a hierarchy where medicine is at a relative advantage to nursing (Starr, 1982). Social dominance theory was developed to explain the development and maintenance of social hierarchies and resulting adverse social problems, including stereotyping, discrimination, and prejudice (Sidanius & Pratto, 1999). A basic tenet of SDT is that in order to understand how social hierarchies perpetuate, the underlying psychological and sociological understandings must be connected (Sidanius & Pratto, 1999). Sildanius & Pratto (1999) state that legitimizing myths, “attitudes, values, beliefs, stereotypes, and ideologies that produce moral and intellectual justification for the social practices that distribute social value within the social system” can

enhance or attenuate group-based hierarchies (Sidanius & Pratto, 1999, p. 45). The data analysis in this study was guided by critical realist theory and SDT.

Examination of the attitudes, values, beliefs, and stereotypes of nursing and medical students revealed that students had gender essentialized views of the profession of nursing as feminine and the profession of medicine as masculine. Both nursing and medical students ascribed communal properties to nursing (feminine) and agentic properties to medicine (masculine). Given that gender itself can be thought of as a "pervasive system of stratification that structures relationships and interactions among men and women, shapes access to resources and status and signifies power" (Aranda, 2016, p. 145), it is reasonable to consider these results as significant in understanding power differentials thought to impede interprofessional collaboration.

Interpretation of the Findings

Consequences of social essentialism. Communal properties can cause problems in the work setting (Heilman, 2012). Gendered stereotypes have both descriptive and prescriptive properties; descriptive designating what men and women are like and prescriptive designating what women and men should be like (Burgess & Borigida, 1999; Eagly & Karau, 2002; Heilman, 2012). Problems arise from the descriptive stereotype of communal characteristics that are thought of as female for women who are expected to behave in agentic ways. For example, the young female medical student in this study's medical student focus group who was told during her surgical rotation that she would have to choose between having a career or a family but she could not have both.

Equally problematic is the thought that men would be better suited in nursing specialties that required less communal characteristics. This could be caused by a perceived lack of fit

between the attributes needed for the job and the gender of the individual practitioner (Heilman, 2012). Clow, Ricciardelli, and Bartfay (2014) discuss perceptions of men in nursing and perceived lack of fit. In their study of advertising in nursing, they found that "emphasizing the masculinity of men in nursing appears to lead to perceptions of greater role incongruity and, consequently, more negative perceptions of male nurses rather than challenging current stereotypes" (Clow, Ricciardelli, & Barfay, 2014, p. 374).

The prescriptive aspect of gender stereotypes can also cause problems in the health care setting. People believe that women should have communal traits. Carli (2001) stated "Research confirms that women's influence depends of their communicating in a communal style that shows a lack of self-interest. Communal behaviors include verbal and nonverbal behaviors, such as smiling, expressing agreement, and showing support of others" (p. 730). Certainly, nursing has a long history of being expected to exhibit communal behaviors when communicating with physicians. Stein (1967) talked about the 'doctor-nurse game', "The cardinal rule of the game is that open disagreement between the players must be avoided at all costs. Thus, the nurse must communicate her recommendations without appearing to be making a recommendation statement" (p. 700). Stein (1967) described a nurse's failure to follow the rules in making recommendations as having "…hell to pay. The outspoken nurse is labeled a "bitch" by the surgeon. The psychiatrist describes her as unconsciously suffering from penis envy and her behavior is acting out of her hostility towards men" (p. 700). Matziou, Vlahioti, Perdikaris, Matziou, Meganpanou, and Petsios (2014) maintain that the doctor-nurse game is still present in spite of changes over time. In Matziou, et al's (2014) study of physician and nursing perceptions regarding communication and collaboration, the authors found that a paternalistic medicine-centered model still impedes the dynamics of interprofessional collaboration, "Even if the

context and the rules of the game may have changed, the dynamics of the game still exists" (Matziou, et al, 2014, p. 532).

Bias stemming from prescriptive stereotypes is value-laden and a result of mainstream beliefs about how things should be (Heilman, 2012). The gender stereotyping of nursing supports the view that nurses *should* selflessly serve others and humbly accept the decisions made by physicians while nurses *should not* be assertive with physicians or draw attention to their expertise (Stein, 1967). Social penalties for violating the prescriptive behavior society assigns to gender remain a serious consideration for professional collaboration. Carli (2001) states, "In group interaction, women who exhibit communal behaviors exert greater influence than women who do not, whereas men exert equal influence over other group members, regardless of how communally they behave" (p. 733). Additionally, studies show that when a woman disagrees, she is disliked by both men and women more than a man who disagrees (Burgoon, Birk, & Hall, 1991; Carli, 1998; Carli, 2001; Perse, Nathanson, & McLeod, 1996). Women who are perceived as behaving in agentic ways are often perceived as cold and distant (Heilman, 2012) making it difficult for nurses to express their professional opinions in interprofessional collaborative interactions. Successful interprofessional collaboration requires that all health professionals are free to express their opinions during decision-making (IPEC, 2011; Ushiro, & Nakayama, 2010) which makes understanding gender-related behavior prescriptives important.

Caring and compassion are part and parcel of the nurse's code of ethics and widely held as the foundation of nursing, in fact, the very first provision in ANA's (2015) *Code of Ethics for Nurses* begins with, "The nurse practices with compassion…" (p. v). Patient satisfaction with hospital care is directly related to the perception of how much the nurse cared about the patient during their stay (Larabee, Ostrow, Whithrow, Janney, Hobbs, & Burant, 2004). There are a

number of caring theories in nursing with Jean Watson's (2005) theory of caring science being the most frequently cited in nursing literature. Watson (2005) describes caring science as a sacred science rooted in morals and ethics and infinite, cosmic love. Watson (2009) believes that nurses who, because of technological and institutional demands, cannot practice caring can become hard, worn-down, brittle, and robotic (p. 467). Watson states that the public is increasingly seeking holistic and spiritual care, "not just sterile depersonalized, medical technological interventions, void of human-to-human caring relationships" (p. 468).

Caring is valued by nurses and patients alike, but the communal designation of nursing as a caring profession can contribute to some negative stereotypes. In their literature review of the public image of nursing, ten Houve, Janes, and Roobol (2013) discussed the communal characteristic of caring:

> The nursing profession is strongly associated with caring, both by the public and by nurses themselves. However, a discrepancy exists in the interpretation of the concept of caring. The studies show that nurses consider caring to be part of their professional identity, whereas the public associates caring with feminine qualities and unprofessionalism. (p. 305)

Haslem, Rothschild, and Ernst (2000) propose a reason behind the differences between the professional and public perception of caring in nursing. They caution that essentialist beliefs about social categories have two distinct forms, *natural kind beliefs,* and *reification/entitativity*. The belief that caring is a feminine concept, rooted in the natural, family-oriented role of women, would be a natural kind belief. Haslem, Rothschild, and Ernst (2000) make a case that trying to modify natural kind beliefs is very difficult, stating that "naturalness *per se* was not associated with low category status, and in fact had a modest but non-significant association with *higher*

status" (p. 125). Reification and entitativity, on the other hand, is the perception that social categories have an inherent sameness exclusive of other categories and members are homogenous. Haslem, Rothschild, and Ernst (2000) believe that "arguments or experiences that challenge beliefs in the homogeneity, distinctiveness and inherent sameness of devalued categories may be more productive" (p. 125).

Clow, Ricciardelli, and Bartfly (2014) came to a similar conclusion in their study of advertising in nursing. They concluded that if nursing wanted to attract more men to the profession, rather than emphasizing the masculinity of men in nursing (challenging the natural aspect of communal-feminine traits), it was more effective to simply portray a diverse array of potential nursing recruits in advertisement (challenging the inherent sameness) (Clow, Ricciardelli, and Bartfly, 2014).

Agentic qualities of leadership and decisiveness valued by society and by medicine could also contribute to sub-optimal collaboration in health care. According to IPEC (2016), a core competency of interprofessional collaboration is communication effective in supporting a team approach to caring for patients. The failure of interprofessional collaboration in patient care is associated with failures in communication. Laschinger and Smith (2013) blamed fragmented communication due to the dominance of the medical model, reluctance to sharing of authority, and resistance to changes in nursing and allied health scopes of practice. Rabow (2015) discuss the process of reinforcing agentic qualities at the expense of communal qualities in medical students. Rabow (2015) describes a 'hidden curriculum' that encourages agentic qualities through a "model of medicine that posits the physician as an independent, infallible hero" (p. 135). Communal properties the students possess diminish through the program, "Research suggests that students become increasingly paternalistic and distanced from patients over the

course of training" (Rabow, 2015, p.). Medical students are encouraged to be self-sufficient, in charge, and not seek help thus diminishing communal skills necessary in interprofessional collaboration (Rabow, 2015).

Multiple studies have shown that the construct of interprofessional collaboration is viewed differently by physicians and nurses. House and Havens (2017) conducted a systematic review of the literature and found that there were varied perceptions of effective collaboration in the 16 studies they reviewed. Nursing literature describes collaboration more often in terms of positive working relationships among professionals sharing their respective skill sets, knowledge and expertise while medical literature most frequently refers to collaboration as consultation with other professionals when physicians decide it is needed (Okuhara, Faire, & Pike, 2011). Communication problems in interprofessional collaboration could stem from nursing and medicine not having the same mental construct of what interprofessional collaboration is. Nursing seems to view collaboration as a communal construct; medicine as part of their agentic responsibilities.

Essentialist views are used to rationalize the status quo and impede change (Haslam & Whelan; 2008; Jost & Banaji, 1994; Martin & Parker, 1995). Kray, Howland, Russell, and Jackman (2016) found that when men held the belief that gender roles are biologically determined they were more likely to hold beliefs sustaining gender inequality. According to Tinsley, Howell, and Amantullah (2015), the strength of an individual's belief that gender is a foundational force in a person's abilities is directly correlated to a preference for patriarchal social structures. Essentialist thinking, in general, serves to justify existing social inequalities (Yzerbyt, Rocher, Schadron, 1997) and it is important that essentialist views are understood so

progress can be made in overcoming the barrier this appears to be to interprofessional collaborative practice.

Understanding social essentialism can inform IPE. Haslam, Rothschild, and Ernst (2000) found that there are two distinct forms of social essentialism; natural kind beliefs, and reification-entitativity. Natural kind beliefs are beliefs that a category has an essence rooted in biological underpinnings, reification is the perception that social relations are inherent attributes and entitativity is the idea that a group is a pure entity (Haslam, Rothschild, & Ernst, 2000). Haslam, Rothschild, and Ernst (2000) reported that findings indicated that "combating beliefs in the naturalness of social categories may be less productive than combating beliefs in their entitativity" (p. 125). Haslam, Rothschild, and Ernst (2000) contend that the entitativity component is what is associated with low social status. Glick and Fiske (2001) described the dual nature of sexism as having two parts, a benevolent cherishing of women, along with a hostile component and together they were used to justify existing power structures and hierarchies. Studies bear these theories out; for example, Kray et al. (2016) found that when they were able to reduce the reification of gender roles, men minimized their defense of the status quo to the same level as women.

Although these theories were not developed to explain medical hierarchies, they appear to be able to provide insight into gender discrimination and provide an opportunity to parse out critical components of interprofessional education. For example, if reducing reification and entitativity is a goal, in addition to training on commonalities of different disciplines in interprofessional education initiatives, specific focus could be given to the variety of people, individual skills and other variations within their field (reduction of reification). Coupling this

approach with structured opportunities for students to get to know students of other disciplines on a personal level may help modify essential beliefs (reduction of entitativity).

Limitations

Limitations of this study include the small sample size necessitated by focus group data collection. In addition, only one medical student focus group could be convened, increasing the possibility that results might not be a good representation of beginning medical students in general. Focus group moderator skills can vary, and although the focus groups' conversations were guided with a list of pre-determined questions, the necessity of having two different moderators may also have affected results.

Another limitation is the narrow scope of the focus group subjects. Only students relatively new their respective programs were included in the focus groups. It would be interesting to see if the results were similar in not only students new to the field, but in students completing their professional programs.

Finally, although two colleagues with expertise in qualitative analysis verified the coding and analysis, there is always the possibility that the results in qualitative studies are either under or over-stated. Further inquiry would help solidify the conclusions.

Implications and Recommendations for Further Research

There is an opportunity to use the results of this study to improve and refine interprofessional education for pre-professional health care students. Targeting the entitativity aspect of the stereotyping of nursing and medicine in interprofessional education experiences for pre-professionals may reduce the negative effects of stereotyping that appears to be affecting interprofessional collaboration. There is an opportunity for improving communication training health care pre-professionals. Existing literature on improving communication between

communal women and agentic men may help inform education efforts for improving communication between communal nurses and agentic physicians. To further examine this topic, the development of a survey instrument that could capture the degree to which people ascribe communal and agentic properties to nurses and physicians may be beneficial.

Conclusion

Social dominance theory is a tool used to help sort out the complex social structures underlying hierarchies and legitimizing discriminatory behaviors (Sidanius, et al., 2004). This study examined the discourses about power, hierarchy, and interprofessional collaboration in health care literature to understand views of hierarchy at the institutional level. Historically male-dominated medicine is at the top of the hierarchy; physicians have maintained control over the provision of health care in the United States through the creation and continuance of professional boundaries that preserve their autonomy (Starr, 1982). Historically female-dominated nursing has also worked toward the creation of professional boundaries and autonomy but has been hampered by societal beliefs about women's abilities and the perception that nursing is an occupation serving the needs of medicine, not a profession in and of itself (ANA, 2010; Matthews, 2012). Although nursing has refined and defined the profession's sphere of knowledge, nursing is still considered subordinate to medicine (Abbot, 1988; Schneider, 2016).

Gender-based inequalities privileging men are built into the structure of health care and when a job such as nursing is perceived as feminine, it has a lower status in the workplace, resulting in lower pay and discriminatory promotional practices, than a masculine job (Bell, Michalec, & Arenson, 2014). Gendered stereotyping of nursing and medicine affects the profession as a whole and the individuals occupying the roles of nurse and physician. Women continue to earn less than men across all professions, including women physicians when

compared to their male counterparts and "Women physicians suffer the largest gender pay gap of any of the professions, earning only $0.62 for every $1.00 a male physician earns" (Ferraris-Baron, 2017; US Census Bureau, 2010). Gender stereotyping affects men in nursing, with men who enter nursing perceived as not quite smart enough to be a doctor (Koenig, et al., 2011).

To investigate how pre-licensure nursing and medical students view gender and hierarchy in the professions of nursing and medicine, a critical realist grounded theory approach was used to develop a theory. The theory that emerged was: *Essential beliefs about female and male characteristics, roles, and abilities affect student's perception of the characteristics, roles, and abilities of nurses and physicians.* Students of both professions had strongly gendered essential beliefs about both the professions of nursing and medicine. Participants identified that nurses have, and need, strongly communal, or feminine, characteristics such as caring, patience, and kindness. Participants ascribed strongly agentic, or masculine characteristics such as leading, managing, and autonomy to physicians.

Social essentialism can have repercussions throughout the workplace. Expectations of what men and women are like, and what they should be like, cause dissonance when men or women choose jobs seen as 'for' the other gender or when they display behavior ascribed to the other gender (Carli, 2001). Social consequences of perceived violations of gendered expectations can contribute to communication breakdowns (Heilman, 2012), which may be contributing to nurses' reluctance to speak up (agentic behavior) in group situations as well as contributing to physicians' reluctance to affiliate (communal behavior) with other professionals' in patient care decisions.

Essentialist beliefs about social categories, such as nursing or medicine, have two distinct forms, *natural kind beliefs,* and *reification-entitativity.* Reification occurs when the social

category is ascribed human characteristics (nursing as female, medicine as male), and entitativity occurs when that category is then perceived as an entity unto itself, abstracted from its individual members. In pursuit of modifying people's essentialist beliefs, it may be more productive to challenge the reification/entitativity aspect (Haslem, Rothschild, & Ernst, 2000).

Essentialist views serve to justify existing social inequalities (Yzerbyt, Rocher, & Schadron, 1997). Understanding social essentialism has the possibility of informing interprofessional education to improve interprofessional collaborative practice, thereby improving patient outcomes.

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Appendix A: Table of Literature Reviewed

Author(s), Title, Journal	**Year**	**Purpose of Work**	**Key Words**	**Major Concepts**	**Funding Sources that supported document**	**Comments**
Alexanian, J. A., Kitto, S., Rak, K. J., & Reeves, S. Beyond the team: Understanding interprofessional work in two North American ICUs. *Critical Care Medicine 43*, 1880-1886	2015	To examine the ways in which healthcare professionals work together in the ICU settine, through a consideration of the contextual, organizational, processual, and relational factors that impact their interprofessional collaboration.	Critical care; ethnography; intensive care units; interprofessional collaboration; teamwork	Interprofessional work within ICUs is frequently described in terms of teamwork but the majority of interprofessional actions observed was more collaboration on specific issues, coordination, or networking.	Gordan and Betty Moore Foundation	Ethnography
Bell, Ann V., Michalec, Barret, & Arenson, Christine. The (stalled) progress of interprofessional collaboration: the role of gender. *Journal of Interprofessional Care, 28*(2), 98-102.	2014	Discusses gender influences on the progress of interprofessional collaboration in practice.	Health and social care; Interprofessional collaboration, teamwork	Gender inequalities helped shape the hierarchical health care system. Continued impact of the larger issues of gender inequality impede interprofessional collaboration in practice.	None identified	Historical perspective

Author(s), Title, Journal	Year	Purpose of Work	Key Words	Major Concepts	Funding Sources that supported document	Comments
Bleakley, A. The dislocation of medical dominance: Making space for interprofessional care. *Journal of Interprofessional Care, 27*(S2), 24-30.	2013	Describe the historical transition of modern medicine from an autonomous profession to a team-based interprofessional practice using the concepts of space, both social and cognitive.	Collaboration, interprofessional care, interprofessional learning, interprofessional practice, power, professional boundaries	Using Foucault's medical domination theory, describes the hospital corridor as facilitating interprofessional collaboration by providing space not dominated by physicians	None identified.	Discussion paper
Costa, D. K., Barg, F. K., Asch, D. A., & Kahn, J. M. Facilitators of an interprofessional approach to care in medical and mixed medical/surgical ICUs: A multicenter qualitative study. *Research in Nursing & Health, 37*, 326-335.	2014	Describe clinicians' perceptions of interprofessional collaboration in the ICU	Critical care; collaboration; communication; hospital/institutional environment; interprofessional care; health care delivery	Interprofessional collaboration was facilitated by both cultural and structural factors in the ICU.	Supported by the National Institutes of Health.	Qualitative study
Ferraris-Baron, D.A.L. *Does gender matter in the evaluation of successful physicians? Examining how evaluators use stereotype-based attributions in determining outcomes at work.* (Doctoral dissertation)	2017	Explore gender bias in opportunities for physicians.	Social science; psychology; attributions; gender bias; healthcare; stereotyping; unconscious bias; workplace outcomes	Women physicians have the largest gender pay gap of any profession, earning $0.62 for every $1 a male physician earns. Describes horizontal segregation.	No funding specified	Dissertation
Goldman, J., Reeves, S., Wu, R., Silver, I., MacMillan, K., & Kitto, S. A sociological exploration of the tensions related to interprofessional collaboration in acute-care discharge planning. *Journal of Interprofessional Care, 30*, 217-225.	2016	Gain a more in-depth understanding of interprofessional interactions in general internal medicine discharge planning	Acute care; ethnography; interprofessional collaboration; medical dominance; negotiation; patient discharge; social theory	Structural factors impact interprofessional collaboration.	Canadian Institutes of Health Research	Ethnography

Author(s), Title, Journal	Year	Purpose of Work	Key Words	Major Concepts	Funding Sources that supported document	Comments
Hart, C. The elephant in the room: Nursing and nursing power on an interprofessional team. *The Journal of Continuing Education in Nursing, 46*, 349-355	2014	Explores how perceptions of status influenced participation on an interprofessional team.	Interprofessional collaboration, nursing, power	Notions of power, voice and role intersect to describe the role and status in interprofessional team. Both nurses and non-nurses described how power & voice influences nurses' behavior on teams.	No funding specified	Qualitative
Haddera, W., & Lingar, L. Are we all on the same page? A discourse analysis of interprofessional collaboration. *Academic Medicine, 88*, 1509-1515.	2013	Understand the concept of interprofessional collaboration and explore the meaning for its adoption into physician training	Interprofessional collaboration; discourse analysis; physician training	Describes two major discourse themes in literature on interprofessional collaboration: utilitarian and emancipatory. Utilitarian=tool for better patient outcomes and Emancipatory=empowerment of professions subordinate to medicine	None	Critical discourse analysis
House, S., & Havens, D. Nurses' and physicians' perceptions of nurse-physician collaboration: A systematic review. *The Journal of Nursing Administration, 47*, 165-171.	2017	Explore nurses' and physicians' perceptions of nurse-physician collaboration and the factors that influence their perceptions.	Nurse-physician relations; systematic review; teamwork; communication; interdisciplinary	Effective collaboration is viewed differently between groups of physicians and nurses. There is no standard operational definition of collaboration.	No funding specified	Systematic review
Kreindler, S. A., Dowd, D. A., Star, N. D., & Gottschalk, T. Silos and social identity approach as a framework for understanding and overcoming divisions in health care. *The Milbank Quarterly, 90*, 347-374.	2012	To investigate integration and collaboration among groups providing health care.	Social identification, health services organization and administration, health personnel, interprofessional relations	Described structural inequalities between doctors and nurses and stressed the need for understanding unequal power and status dynamics before calling for teamwork.	No funding specified	Social identity theory
Pillitteri, A., & Ackerman, M. The "doctor-nurse game": A comparison of 100 years -- 1888-1990. *Nursing Outlook, 41*, 113-116.	1993	Examine changes in physician-nurse relationships over time	Interprofessional relations; authoritarianism; nurse-physician relations	Compared doctor-nurse collaboration using physician's journals, one from 1888 and one from 1990	No funding specified	Qualitative History

Author(s), Title, Journal	Year	Purpose of Work	Key Words	Major Concepts	Funding Sources that supported document	Comments
Price, S., Doucet, S., & Hall, L. M. The historical social positioning of nursing and medicine: Implications for career choice, early socialization and interprofessional collaboration. *Journal of Interprofessional Care, 28,* 103-109.	2014	Understand the socio-historic context in which professional socialization occurs	History, interprofessional collaboration, nurse-physician relationship, socialization	Interprofessional collaboration is affected by identity, power and position between physicians and nurses	No funding specified	Literature review History
Reeves, S., MacMillan, K., & Van Soeren, M. Leadership of interprofessional health and social care teams: a socio-historical analysis. *Journal of Nursing Management, 18,* 258-264.	2010	Explore some of the key socio-historical issues related to the leadership of interprofessional teams.	History; Interprofessional; teamwork; team collaboration	Intergroup inequality between medicine and nursing is rooted in history of these professions.	No funding specified	History
Reverby, S. (1987). *Ordered to care: The dilemma of American nursing, 1850-1945.* New York: Cambridge University Press.	1987	Overall history of nursing's development within the context of women's history and social history of health care.	Nursing; women's rights; nurse-physician relations	Early nurse training emphasized moral virtues and women's caring nature, impeding development of the profession.	No funding specified.	History
Schneider, D. *Gendering profession: Experiences of nursing in the United States* (Doctoral dissertation).	2016	Using nursing as a focus, explores gender, race and class dynamics in professions.	Interprofessional relations; nursing; professionalism; gender; power; nurse-physician relations	The paternalistic medical profession, association of nursing with virtues of womanhood, and women being subservient to men during the early years of nursing impacted the development of the profession.	No funding specified.	Ethnography
Sollami, A., Carcati, L, & Sarli, L. Nurse-physician collaboration: A meta-analytical investigation of survey scores. *Journal of Interprofessional Care, 29,* 223-229.	2015	Investigate how nurses and physicians differ in their attitudes and perception of interprofessional collaboration.	Interprofessional collaboration, meta-analysis, nurse, physician	Nurses value collaboration more than physicians while physicians perceive more existing collaboration than nurses.	No funding specified.	Meta-analysis

Author(s), Title, Journal	Year	Purpose of Work	Key Words	Major Concepts	Funding Sources that supported document	Comments
Starr, Paul. (1982). *The social transformation of American medicine.* United States: Basic Books.	1982	Provide a social history of the medical profession in the United States.		Social structure is the outcome of historical processes and the development of medical care has taken place within the larger fields of power and social structure. Both culture and institutions affect the professional sovereignty of the field of medicine. Physicians built their profession by maintaining their autonomy in the physician-patient relationship.	No funding specified.	History and sociologic analysis; Seminal work
Stein, L. I. The doctor-nurse game. *Arch Gen Psychiatry, 16*(6), 699-703.	1967	To describe communication between physicians and nurses.	Communication; interprofessional relations; nurses; physicians; punishment reward set (Psychology); sex	Physician nurse communication is characterized by a dominant/subservient relationship.	No funding specified	Seminal work
Weeks, M. B. Nurse physician communication--discourse analysis. *Can Oper Room Nurs J, 22*(4), 33-37.	2004	To study communication between physicians and nurses. Discourse analysis	Authoritarianism; communication; cooperative behavior; cultural characteristics; fear; attitudes; practice; nurse's role; physician-nurse relations; power (Psychology); social dominance	Historically rooted gender issues, socio-economic status inequalities, education, and employment status affects interprofessional communication between physicians and nurses in acute care settings, negatively impacting patient care.	No funding specified.	Critical discourse analysis

Appendix B: Letters of Permission

Letter of permission from Marianne Schmid-Mast for the use of the Interprofessional Hierarchy Expectation scale:

C. Christine Delnat <cdelnat@hawaii.edu> Thu, Nov 29, 2018 at 12:02 PM

To: marianne.schmidMast@unil.ch

Dear Dr. Mast,

I am working on my dissertation at the University of Hawaii at Manoa. I am investigating power hierarchies as related to interprofessional collaboration in healthcare. I would like to use your Interpersonal Hierarchy Expectations scale as a part of my mixed methods investigation. How would I go about requesting permissions for this use?

Thank you, Christine Delnat

Aloha from
C. Christine Delnat, MSN, RN
Assistant Professor
St Mary-of-the-Woods College

PhD student at UH Manoa

cdelnat@smwc.edu

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Marianne Schmid Mast <marianne.schmidmast@unil.ch> Thu, Nov 29, 2018 at 12:50 PM

To: "C. Christine Delnat" <cdelnat@hawaii.edu>

Dear Christine,

Here is the scale. You can use it for research purposes for free.

Kind regards,

Marianne Schmid Mast

Letter of permission from Cordelia Fine to use gender essentialism question format:

gender essentialism

3 messages

C. Christine Delnat <cdelnat@hawaii.edu> Wed, Dec 26, 2018 at 4:06 PM
To: cfine@unimelb.edu.au

Dear Dr. Fine,

I am a PhD student at the University of Hawaii at Manoa. I would like to use your gender essential research to inform my own research on how gendered essentialist beliefs impact interprofessional collaboration among nurses and physicians. I would like to use the following questions in structured interviews of nursing and medical students in their first year of training. I am hoping to get at student beliefs that may be impeding the progress of interprofessional collaboration.

I developed these questions based on your work, they are not the same as they are intended to investigate gendered beliefs toward nursing and medicine, but as they are so closely aligned with your tool, I am seeking your permission to continue with these questions.

1. What is your role on the interprofessional team?

2. a. Medical students: What is the nurse's role on the interprofessional team?

b. Nursing students: What is the role of the physician on the interprofessional team?

3. Historically, medicine has been thought of as a masculine profession and nursing as a feminine profession. How do you think this affects how medicine and nursing work together?

4. What do you think about the statement, "More women than men choose nursing because they are innately more nurturing than men"?

5. What specialties in nursing do you think male nurses excel in?

6. What specialties in medicine do you think female physicians excel in?

7. Is it possible to know about many aspects of a person once you learn they are a medical student? Why or why not?

8. Is it possible to know about many aspects of a person once you learn they are a nursing student? Why or why not?

9. How do you think opportunities for women in nursing differ from opportunities for men in nursing?

10. How do you think opportunities for women in medicine differ from opportunities for men in medicine?

11. What personality differences do you think exist among people who choose medicine as a career and people who choose nursing as a career?

12. In what way do you think physician's thought processes differ from nurse's thought processes?

13. How do you think society will view the professions of nursing and medicine in 100 years?

I would appreciate your feedback as soon as practical. I am currently developing my dissertation proposal.

Thank you so much, Chris Delnat

Aloha from
C. Christine Delnat, MSN, RN
Assistant Professor
St Mary-of-the-Woods College
PhD student at UH Manoa
cdelnat@smwc.edu
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Cordelia Fine <cfine@unimelb.edu.au> Wed, Dec 26, 2018 at 4:11 PM
To: "C. Christine Delnat" <cdelnat@hawaii.edu>

Hi Christine,

Well, I don't think it's necessary to have my permission but I certainly grant it - good luck!

All best,
Cordelia

Appendix C: Interpersonal Hierarchy Expectations Scale

1. If people work together on a task, one person is always taking over the lead.
2. Every group needs to have someone with extra power or authority to be sure things get done properly.
3. It's probably a good thing that certain people are at the top and other people are at the bottom.
4. Usually, people are very happy when someone takes charge and lets them know how things should be done.
5. In general, it is necessary that certain people subordinate themselves to a leader.
6. To get ahead in life, it is sometimes necessary to step on others.
7. I feel more comfortable if I know the hierarchical structure of a group of people I am introduced to.
8. It is best if some people only contribute their ideas so that others can make decisions.

IHE Scale (Mast, 2005a)

Appendix D: Focused Interview Questions

1. What is your role on the interprofessional team?
2. a. Medical students: What is the nurse's role on the interprofessional team?

   b. Nursing students: What is the role of the physician on the interprofessional team?
3. Historically, medicine has been thought of as a masculine profession and nursing as a feminine profession. How do you think this affects how medicine and nursing work together?
4. What do you think about the statement, "More women than men choose nursing because they are innately more nurturing than men"?
5. What specialties in nursing do you think male nurses excel in?
6. What specialties in medicine do you think female physicians excel in?
7. What reasonable assumptions can you make about a person once you learn they are a medical student?
8. What reasonable assumptions can you make about a person once you learn they are a nursing student?
9. How do you think opportunities for women in nursing differ from opportunities for men in nursing?
10. How do you think opportunities for women in medicine differ from opportunities for men in medicine?
11. What personality differences do you think exist among people who choose medicine as a career and people who choose nursing as a career?
12. In what way do you think physician's thought processes differ from nurse's thought processes?
13. How do you think society will view the professions of nursing in 100 years?
14. How do you think society will view the profession of medicine in 100 years?

Appendix E: Online Survey Questions

Interpersonal Hierarchy Expectation Scale

Study of Beliefs and Perceptions of Nursing and Medical Students

- THANK YOU for participating. This is a brief survey, just 15 questions. It should only take between 5 and 10 minutes of your time.
- Research conducted by University of Hawaii at Manoa School of Nursing and Dental Hygiene Ph.D. candidate C. Christine Delnat.
- Interpersonal Hierarchy Expectations Scale questions used with permission granted by the author, Marianne Schmid-Mast, Ph.D.
- Please answer the following questions to the best of your ability.
- Your participation is purely voluntary.

1. What is your gender? (Choices: Female, Male, Non binary)
2. What ethnicity do you consider yourself? (Choices: White or Caucasion; Black or African American; Hispanic or Latino; Asian or Asian American; American Indian or Alaska Native; Native Hawaiian or other Pacific Islander; Another race)
3. Discipline? (Choices: Medicine; Nursing)
4. What year are you in medical school? [Skipped if Discipline=Nursing] (Choices:1st year, 2nd year, 3rd year, 4th year)
5. What year are you in nursing school? [Skipped if Discipline=Medicine] (Choices: Sophomore cohort, Junior cohort, Senior cohort)
6. What is the highest level of education you have completed? (Choices: Graduated from high school, 1 year of college, 2 years of college, 3 years of college, 4 years of college, Baccalaureate degree, Some graduate school, Master's degree, Doctoral degree)

Interpersonal Hierarchy Expectation Scale Questions: (Choices: Disagree strongly, Disagree, Somewhat disagree, Somewhat agree, Agree, Agree Strongly)

7. If people work together on a task, one person is always taking over the lead.
8. Every group needs to have someone with extra power or authority to be sure things get done properly.
9. It's probably a good thing that certain people are at the top and other people are at the bottom.
10. Usually, people are very happy when someone takes charge and lets them know how things should be done.
11. In general, it is necessary that certain people subordinate themselves to a leader.
12. To get ahead in life, it is sometimes necessary to step on others.
13. I feel more comfortable if I know the hierarchical structure of a group of people I am introduced to.
14. It is best if some people only contribute their ideas so that others can make decisions.
15. If you would like to receive a $5 Starbucks eCard, please enter the email address you would like me to send it to. _____
16. Thank you for completing this survey.

    If you would like to receive a copy of the results from this research, please enter the email address you would like me to send it to._____

Appendix F: Consent Forms

Copy of survey consent form:

University of Hawai'i
Consent to Participate in a Research Project
C. Christine Delnat Investigator
"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?"

Aloha! My name is Christine Delnat and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i at Mānoa in the School of Nursing and Dental Hygiene. As part of the requirements for earning my Ph.D., I am doing a research project.

What am I being asked to do?
If you participate in this project, you will be asked to fill out a survey.

Taking part in this study is your choice.
Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you.

Why is this study being done?
The purpose of this study is to explore what intrinsic beliefs affect student perceptions of the professions of nursing and medicine.

What will happen if I decide to take part in this study?
The survey will consist of 8 questions you will rate on an agreement scale and 6 demographic questions. It will take approximately 10 minutes to complete. The survey questions will include questions like, "If people work together on a task, one person is always taking over the lead." "I feel more comfortable if I know the hierarchical structure of a group of people I am introduced to." The survey is accessed on a website to which I will provide you a link.

What are the risks and benefits of taking part in this study?
I believe there is little risk to you for participating in this research project. You may become stressed or uncomfortable answering any of the survey questions. If you do become stressed or uncomfortable, you can skip the question or take a break. You can also stop taking the survey or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this survey. The results of this project may help improve interprofessional collaboration training.

Confidentiality and Privacy:
I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses. I will keep all study data secure in a locked filing cabinet in a locked office/encrypted on a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Compensation:
To partially compensate for your time, I will email you a $5 Starbucks eGift card.

Future Research Studies:
Identifiers will be removed from your identifiable private information and after removal of

Page 2 of online survey consent form:

University of Hawai'i
Consent to Participate in a Research Project
C. Christine Delnat Investigator
"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?"

identifiers, the data may be used for future research studies or distributed to another investigator for future research studies and we will not seek further approval from you for these future studies.

Questions: If you have any questions about this study, please call or email me at 812-239-0121 or cdelnat@hawaii.edu. You may also contact my advisor, Dr. John Casken, at 808-956-5750 or casken@hawaii.edu. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit http://go.hawaii.edu/jRd for more information on your rights as a research participant.

To Access the Survey: Please go to the following web page: https://www.surveymonkey.com/r/8966NP5. You should find a link and instructions for completing the survey. Going to the first page of the survey implies your consent to participate in this study.

Please print or save a copy of this page for your reference.

Mahalo! C. Christine Delnat

Consent form for focus group participants

Consent to Participate in a Research Project

C. Christine Delnat, Investigator

"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?"

Aloha! My name is Catherine Delnat and I am a graduate student at the University of Hawai'i (UH) at Mānoa in the School of Nursing and Dental Hygiene. I am doing a research project as part of the requirements for earning my Ph.D.

What am I being asked to do?

If you participate in this project, you will join about six other people in a focus group to talk about your beliefs and perceptions about the professions of nursing and medicine.

Taking part in this study is your choice.

Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you.

Why is this study being done?

The purpose of this study is to explore what intrinsic beliefs affect student perceptions of the professions of nursing and medicine.

What will happen if I decide to take part in this study?

The discussion will be guided by about 14 open ended questions. It will take about an hour to an hour and a half. Focus group questions will include questions like, "In what way do you think physician's thought processes differ from nurse's thought processes?", and "Historically, medicine has been thought of as a masculine profession and nursing as a feminine profession. How do you think this affects how medicine and nursing work together?"

With your permission, I will audio-record the interview so that I can later transcribe the interview and analyze the responses.

What are the risks and benefits of taking part in this study?

I believe there is little risk to you in participating in this research project. You may become stressed or uncomfortable answering any of the questions or discussing topics during the focus group. If you do become stressed or uncomfortable, you can skip the question or take a break. You can also stop participating at any time.

There will be no direct benefit to you for participating in this focus group. The results of this project may help improve interprofessional collaboration training.

Privacy and Confidentiality: I will keep all study data secure in a locked filing cabinet in a locked office/encrypted on a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

After I write a copy of the interviews, I will erase or destroy the audio-recordings. When I report the results of my research project, I will not use your name. I will not use any other personal identifying information that can identify you. I will use pseudonyms (not your real names) and report my findings in a way that protects your privacy and confidentiality to the extent allowed by law.

Page 2 of focus group consent form:

Consent to Participate in a Research Project
C. Christine Delnat, Investigator
"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?"

Although we ask everyone in the focus group to respect everyone's privacy and confidentiality, and not to identify anyone in the group or repeat what is said during the group discussion, please remember that other participants in the group may accidentally disclose what was said. Avoid sharing personal information that you may not wish to be known.

Compensation:
You will receive a $10 gift certificate for your time and effort in participating in this research project.

Future Research Studies:
Identifiers will be removed from your identifiable private information and after removal of identifiers, the data may be used for future research studies or distributed to another investigator for future research studies and we will not seek further approval from you for these future studies.

Questions:
If you have any questions about this study, please call or email me at 812-239-0121 or cdelnat@hawaii.edu. You may also contact my advisor, Dr. John Casken, at 808-956-5750 or casken@hawaii.edu. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit http://go.hawaii.edu/jRd for more information on your rights as a research participant.

If you agree to participate in this project, please sign and date the following signature page and return it to: Teressa Moore prior to joining the group.

Keep a copy of the informed consent for your records and reference.

Signature(s) for Consent:

I give permission to join the research project entitled, *"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs."*

Please initial next to either "Yes" or "No" to the following:

____ Yes ____ No I consent to be audio-recorded for the interview portion of this research.

Name of Participant (Print): _____

Participant's Signature: _____

Signature of the Person Obtaining Consent: _____

Date: _____

Appendix G: Consent Forms

UNIVERSITY of HAWAI'I® MĀNOA

Office of Research Compliance
Human Studies Program

DATE:	April 16, 2019
TO:	Casken, John, PhD, MPH, RN, University of Hawaii at Manoa, School of Nursing and Dental Hygiene
	Delnat, Catherine, MS, RN, School of Nursing and Dental Hygiene, University of Hawaii at Manoa
FROM:	Rivera, Victoria, Dir, Ofc of Rsch Compliance, Social & Behavioral
PROTOCOL TITLE:	Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Interprofessional Education in Pre-Professional Programs?
FUNDING SOURCE:	
PROTOCOL NUMBER:	2019-00132
APPROVAL DATE:	April 16, 2019

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Under an expedited review procedure, the research project identified above was approved on April 16, 2019 by the University of Hawaii Institutional Review Board (UH IRB). The application qualified for expedited review under 45 CFR 46.110 and 21 CFR 56.110, Category 6, 7. Per 45 CFR 46.109, **a Continuing Review is not required, however you may be requested to submit a progress report.**

This memorandum is your record of the IRB approval of this study. Please maintain it with your study records.

The Human Studies Program approval must be maintained for the entire term of your project. Please see guidance at Final Revisions to the Common Rule on the regulatory requirements for ongoing review and/or monitoring of research approved under an expedited review category.

If, during the course of your project, you intend to make changes to this study, you must obtain approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via the UH eProtocol application. If an Unanticipated Problem occurs during the course of the study, you must notify the Human Studies Program within 24 hours of knowledge of the problem. A formal report must be submitted to the Human Studies Program within 10 days.The definition of "Unanticipated Problem" may be found at: HSP Policies & Guidance Quicklink . The report form may be submitted via the eProtocol application.

You are required to maintain complete records pertaining to the use of humans as participants in your research. This includes all information or materials conveyed to and received from participants as well as signed consent forms, data, analyses, and results. These records must be maintained for at least three years following project completion or termination, and they are subject to inspection and review by the Human Studies Program and other authorized agencies.

Study Closure: Please notify this office when your project is complete. Upon notification, we will close our files pertaining to your project. Please contact

UH Human Studies Program, Office of Research Compliance
Office of the Vice President for Research and Innovation, University of Hawai'i, System
2425 Campus Road, Sinclair 10, Honolulu HI 96822
Phone: 808.956.5007 • Email: uhirb@hawaii.edu
https://www.hawaii.edu/researchcompliance/human-studies
An Equal Opportunity & Affirmative Action Institution

Page 2 of Approval of Human Research (University of Hawai'i)

UNIVERSITY of HAWAI'I® MĀNOA

Office of Research Compliance
Human Studies Program

this office if you have any questions or require assistance. We appreciate your cooperation, and wish you success with your research.

UH Human Studies Program, Office of Research Compliance
Office of the Vice President for Research and Innovation, University of Hawai'i, System
2425 Campus Road, Sinclair 10, Honolulu HI 96822
Phone: 808.956.5007 • Email: uhirb@hawaii.edu
https://www.hawaii.edu/researchcompliance/human-studies
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Approval for Human Research from Saint Mary-of-the-Woods College

MEMO

To: Catherine Christine Delnat, Ph.D., RN

From: Lamprini Pantazi, Ph.D., & Chair of the Human Subjects –Institutional Review Board

Date: May 3rd, 2019

Re: Human Subjects Institutional Review Board Application

Thank you for submitting a Human Subjects proposal entitled **"Power and Control in Medicine and Nursing: Could Intrinsic Gender Beliefs Impact Inter-professional Education in Pre-professionals Programs? ".**

The Institutional Review Board (IRB) of Saint Mary-of-the-Woods College has **approved your research.** Unless renewed, this approval will expire on May 2nd, 2020.

If any changes need to be made during implementation of this research project, please submit those changes to the IRB for its approval. Also, if any incidents occur, please notify the IRB as soon as possible.

We wish you success with your research project.

Institutional Review Board members:

Lamprini Pantazi, Ph.D.
Scott Ripple, MD
Douglas Sperry, Ph.D.
Christine Wilkey, MSW, LCSW
Yei-Jin Yeom, Ph.D., RN

Appendix H: Demographic Characteristics of Survey Participants

Table H.1
Demographic Characteristics of Online Survey Participants (*N* = 73)

Characteristic	Nursing Students *n* = 41	Medical Students *n* =32
Gender		
Female – 71.2% (*n* = 52)	38	15
Male – 29.8 (*n* = 21)	3	17
Ethnicity		
White or Caucasian	39	28
Asian or Asian American	1	3
Hispanic or Latino	1	0
Year in Program of Study		
1st year	0	16
2nd year	10	0
3rd year	15	8
4th year	16	8
Highest Level of Education		
2 years of college	8	0
3 years of college	18	0
4 years of college	7	5
Baccalaureate degree	8	13
Some graduate school	0	13
Doctoral degree	0	1